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STATISTICAL REPORT

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1917

OF THE

California State Board of Agriculture

For the Year 1917



CALIFORNIA STATE PRINTING OFFICE
SACRAMENTO
1918

1A—37910

STATE BOARD OF AGRICULTURE, 1917-1918.

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E. FRANKLIN	Vice President
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GEORGE ROBERTSON	Statistician



WILLIAM D. STEPHENS, Governor of California.

In contributing foodstuffs California stands in the very forefront of the states of the Union. We must all join in praise of the response the farmers of California have given to the call of duty. The appeals that have been made to increase production have had most gratifying results. We must continue to make those appeals and we must help the farmers to surmount the difficulties which they encounter. * * * Our purpose must be to encourage the agriculturist and to help him in order that a maximum of production can be brought about in this State.

Wm D. Stephens

CONTENTS.

	PAGE.
LETTER OF TRANSMITTAL.....	iii
FINANCIAL STATEMENT	x

SPECIAL ARTICLES BY DIRECTORS.

CALIFORNIA STATE FAIR—VOCATIONAL DEPARTMENT. By Vice President E. FRANKLIN.....	xii
THE MEAT INDUSTRY UNDER MODERN CONDITIONS. By H. A. JASTRO	xv
GRAPE GROWING IN CALIFORNIA. By THEO. GIER.....	xvii
THE STATE FAIR GROUNDS AND THE STATE FAIR. By CHAS. J. CHENU	xx
SHEEP AND GOAT INDUSTRY IN CALIFORNIA. By T. H. RAMSAY.....	xxiv
THE FUTURE OF THE POULTRY INDUSTRY IN CALIFORNIA. By E. F. MITCHELL.....	xxviii
OUR MAGNIFICENT DELTA LANDS. By I. L. BORDEN.....	xxx
GRAIN RAISING IN CALIFORNIA. By JOHN M. PERRY.....	xxxiii
CO-OPERATION OF COUNTY AUTHORITIES WITH THE STATE BOARD OF AGRICULTURE. By E. J. DELOREY.....	xxxvi
DEVELOPMENT OF THE LIGHT HORSE—PLEASURE AND DRIVING. By T. H. DUDLEY.....	xxxvii
THE DAIRY INDUSTRY IN CALIFORNIA. By RALPH W. BULL.....	xxxix
THE DRAFT HORSE. By CHAS. W. PAINE, Secretary.....	xli
STATISTICAL REPORT. By GEORGE ROBERTSON, Statistician.....	xlv

ILLUSTRATIONS.

Portraits.

HON. WILLIAM D. STEPHENS, Governor of California.....	Frontispiece
BOARD OF DIRECTORS—GEORGE C. ROEDING, President, Fresno. E. FRANKLIN, Vice President, Colfax. CHAS. W. PAINE, Secretary, Sacramento	vi
H. A. JASTRO, Bakersfield. R. W. BULL, Arcata. C. J. CHENU, Sacramento. E. F. MITCHELL, Belvedere. T. H. DUDLEY, Santa Monica.....	viii
J. M. PERRY, Stockton. I. L. BORDEN, San Francisco. T. H. RAMSAY, Red Bluff. THEO. GIER, Oakland. E. J. DELOREY, Los Angeles.....	ix

Views of the Fair Grounds.

SCHOOL EXHIBIT	xii
RED CROSS EXHIBIT—Sacramento Schools.....	xiv
VIEW FROM MAIN ENTRANCE—State Fair Grounds.....	xviii
ONE OF THE PARKING SPACES—State Fair Grounds.....	xx
FRONT ELEVATION—New Agricultural and Horticultural Building.....	xliv
INSIDE VIEW OF STEEL DOME—New Agricultural and Horticultural Building	lv

Horses.

BLACKHAWK CHESSIE, No. 15965—First and Champion Shire Mare, California State Fair, 1916-1917.....	xi
ITHOS, No. 90754—Grand Champion Percheron Stallion, California State Fair, 1917. Owned by M. Bassett, Hanford, California.....	xlii
STEVENOT, No. 9260—Champion Belgian Stallion, State Fair, 1917. Exhibited by Ruby & Bowers, Davis, California, and Portland, Oregon.....	xliii

Cattle.	PAGE.
KING SEGIS ALCARTRA PRILLY, No. 192705—Junior and Grand Champion Holstein Bull, California State Fair, 1917. Exhibited by Bridgeford Co., Knightsen, California-----	xvi
HOPLAND LASSIE, No. 179452—Grand Champion Shorthorn Cow, California State Fair, 1917. Exhibited by Hopland Stock Farm, Hopland, California -----	xvi
RAPHAELLA JOHANNA AAGGIE IIL, No. 185124—Property of Napa State Hospital -----	xxxviii

Hogs.	
RIVERINA PIONEER, No. 25957—Grand Champion Yorkshire Boar, California State Fair, 1917. Exhibited by Riverina Farms, Modesto, California-----	xxx
BILLIKEN, No. 37567—Grand Champion Chester White Boar, California State Fair, 1917. Exhibited by Chas. B. Cunningham, Mills, California -----	xxx
CRIMSON MONARCH II, No. 179243—Grand Champion Duroc Jersey Boar, California State Fair, 1917. Exhibited by J. M. De Vilbiss, Patterson, California -----	xxxii
MAYFIELD LAURELL XVI, No. 238173, Grand Champion Berkshire Sow, California State Fair, 1917. Exhibited by Carruthers Farm, Mayfield and Live Oak, California-----	xxxii

REPORT
OF THE
STATE BOARD OF AGRICULTURE.

LETTER OF TRANSMITTAL.

July 1, 1918.

To Honorable WILLIAM D. STEPHENS,
Governor of the State of California.

DEAR SIR: We have the honor to submit herewith the sixty-fourth annual report of the State Board of Agriculture.

Little did the early settlers who came here during the days of '49 realize what magnificent opportunities were hidden away in the surface of the soil, requiring only to be tickled by the thrifty husbandman to bring forth resources which would develop into proportions far exceeding in annual production the most sanguine expectations of the miners who delved into the bowels of the earth and the rocky beds of streams and rivers for gold.

The possibilities of agricultural and horticultural pursuits were not fully appreciated until fully twenty years after the discovery of gold, and then only in a moderate way.

Facts can not be contradicted, and to say that California is a veritable empire, with a greater diversity of soils and climate than may be found in any other country in the world, is no exaggeration. This is a broad statement, but it is substantiated by the great variety of our agricultural and horticultural products, none of which would have developed to the extent they have had not soil and climatic conditions been as favorable as they are.

To secure a better and more comprehensive understanding of what California is, a few figures will be interesting: The coast line, washed by the warm waters of the great Pacific Ocean, is upwards of 1,000 miles long, with an average width of 200 miles, bounded on the east by the snow-capped Sierra Nevada Mountains ranging in height from 10,000 to 14,000 feet, being covered the year round in the higher elevations with snow, ice and ancient glaciers, supplying the fertile valley

lands below with an abundant supply of water for irrigation purposes as well as furnishing water for the development of hydroelectric power for turning the wheels of industry.

Aligning the coast is a lesser range of mountains known as the Coast Range, uniting with the Sierras in the north at the high peak of Shasta, and in the south with the Tehachapi, forming a mountain wall around the great Sacramento and the San Joaquin valleys, which have an average length of 450 miles and a width varying from 40 to 100 miles. In the Coast Range Mountains there are numerous small valleys, all of which bear an important share in the development of the state.

Approximately the state contains 160,000 square miles of territory, or 100,000,000 acres. The mountains and deserts cover some 60,000,000 acres of land not subject to cultivation and there are 40,000,000 acres adapted to intensive cultivation. Of this vast tract a comparatively small area is cultivated.

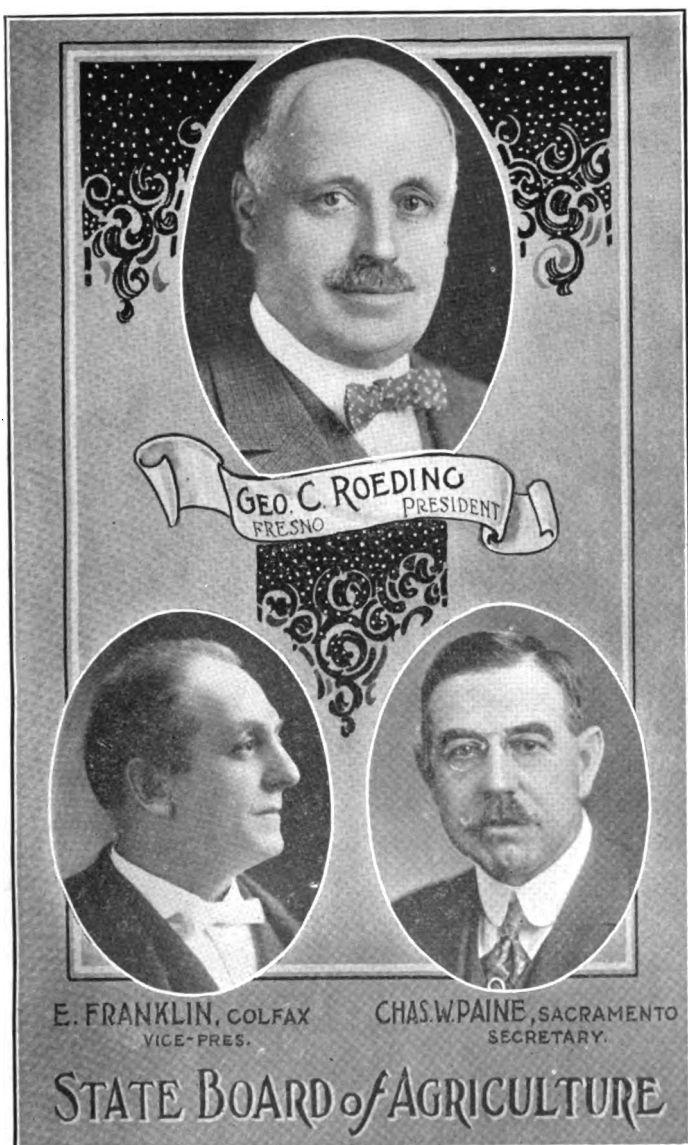
Bearing in mind that our state is larger than all the New England states combined, including Ohio, that it contains nearly 50,000 more square miles than Italy, and is only 36,000 square miles less than Spain, one becomes deeply impressed with the grand opportunity for development and exploitation we have open to us.

The California State Board of Agriculture is very vitally interested in doing everything within its power to promote the material development of every resource this state possesses along the most progressive lines. Since coming into existence in 1854 it has been deeply interested in the advancement of all industries of every character and description.

Many of our prominent men have been and still are actively connected with the State Agricultural Society and have given their time and their services without recompense, because they considered it an honor to be connected with an institution which has one predominating idea in view, and that has been the advancing of the resources of the state to the best of their ability.

Until recent years this work of promotion has been carried on largely through the annual state fairs held in the fall of each year. That the exhibits of all classes of livestock, agricultural, horticultural and other products have had a very beneficial influence, no one will deny.

For a number of years the Board of Directors were very seriously hampered in their efforts toward holding a satisfactory state fair because the pavilion for housing displays was located on the State Capitol grounds and the track and livestock exhibits were held at another point.



—Photo by Hartsook.

In the year 1906 a decided change in the life history of the society commenced, for it was in that year that the grounds now used by the organization, consisting of 89 acres, since increased to 105 acres, became the permanent home for the annual state fairs.

It would be out of place and not in keeping with the purposes of this address to criticise the work of those who preceded this board in conducting the affairs of this institution. Nevertheless, in the earlier days of this society there was a tendency on the part of the directors to give more attention to horse racing to the exclusion of the displays necessary for the upbuilding of the marvelous resources of the state.

All this has now been changed, for the directors feel the great responsibility which devolves on them and they are bending all their energies toward the creation of an institution which will stand out as a living monument to the high-minded purposes which have always dominated them in their laudable efforts to have the State Board of Agriculture identified prominently with every issue which would add to the development of the state. If there is any tendency to criticise, let us not forget that it required the hardy pioneer of the early days, the men who regarded the many obstacles they had to contend with as mere trifles, and that we would be very disloyal to those who preceded us if we did not give them credit for paving the way over the rough places and placing the beacon light for us to go on building and perfecting this institution along the most modern and up-to-date lines.

The ground work has been prepared for us. Have we any other duties besides holding state fairs every year? A glance at the constitution under which we have been created is sufficient to convince us that if we had no other thought in view, we certainly would not be realizing our responsibilities.

The men connected with the State Board of Agriculture know only too well that they must respond to the call that has been made on them, putting forth all the energy, knowledge, and ability they possess, if they are going to maintain their place as one of the factors in the building up of this great and wonderful empire of ours.

The State Fair Grounds must not only have buildings which will be a credit to the state, but they must be along modern lines, making the structures striking architectural features, and at the same time have them as a model of efficiency for other fairs and institutions to follow in buildings which they may want to erect for specific purposes. As an example: A cow barn, a dairy building, a hog barn, and other buildings which it is not necessary to mention here, must serve a purpose of education, and be of such a character and design that

interested parties will obtain ideas from the example set before them which they will be proud to follow.

We realize fully that we have not had sufficient funds to carry out these ideas. A great state like ours, with its rapid development, is constantly demanding funds for its many institutions.

If the legislators have failed in many cases to recognize the legitimacy of our claims, possibly we are to blame because our plans have not been definitely formulated.

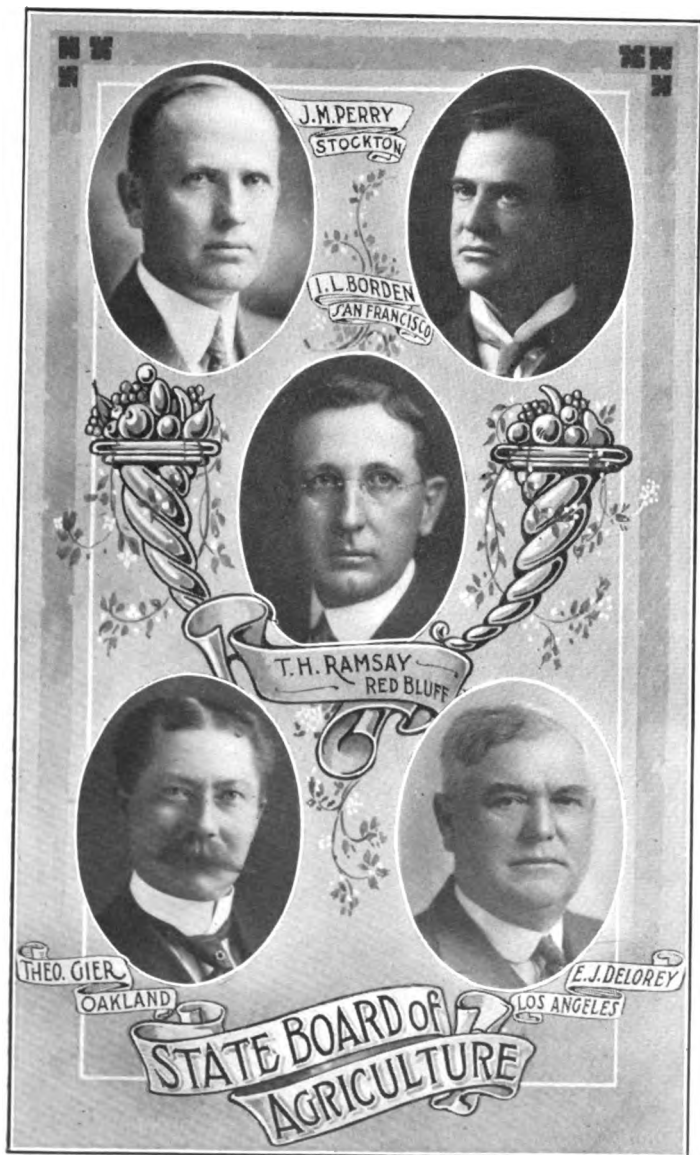
In 1915 we succeeded in securing an appropriation of \$30,000.00 for a Woman's Building and in 1917 another appropriation of \$300,000.00 for an improved and permanent Agricultural and Horticultural Building to replace one destroyed by fire in September, 1916, which is now in the course of erection.

It is safe to say that a new era has commenced in the history of the State Board of Agriculture and it is incumbent upon us now that we have made a good start to see that this work is continued. We should prepare without delay a series of plans and a model of our grounds, and the buildings we propose to erect, so as to have this ready for presentation to the next legislature, with a view of securing an appropriation for more buildings for housing our diversified exhibits of livestock, agricultural and horticultural products.

Our Statistical Report is a most valuable adjunct to our association. It is the index of the progress the state is making in every branch of industry. It most effectively disseminates information to the outside world what is being accomplished and reflects like a mirror the activity of this Board of Directors in enlightening those engaged in similar undertakings as to the progress our state is making.

It is up to us not only to take a personal interest in the improvement and the development of this report, but also to use our best efforts in securing financial assistance from the next legislature in order to permit us to enlarge it and secure much valuable data which is now omitted because of the lack of funds. During the last two years much time and money was expended in an effort to obtain at short notice reliable statistics regarding the production of crops and other information of importance which could have been immediately available had the appropriation for statistics permitted such work. The results obtained were unsatisfactory and in some cases a total failure. .

We have still another duty to perform and that is to act in a supervisory capacity over all district and county fairs, and aid them in every possible manner by advice and example in promoting their welfare.



—Photo by Hartsook.



—Photo by Hartsook.

In conclusion, allow me to say that at no time in the history of the world is the producer of articles of food so necessary to the well being of the nation as at this time.

As representatives of the great producing interests of California, let us cheerfully do our share and give our aid in promoting the wonderful resources with which this grand state of ours has been so magnificently endowed.

Respectfully submitted.

GEO. C. ROEDING,
President.

CHAS. W. PAINE, Secretary.

FINANCIAL STATEMENT.

RECEIPTS.

July 1, 1917, to June 30, 1918.

Balance for 1916 Fair.....	\$0,943 30	
Received from appropriations.....	105,262 80	
Receipts from 1917 Fair.....	72,014 28	
Gate receipts.....	\$58,566 45	
Concession receipts.....	6,904 28	
Exhibit space fees.....	4,853 13	
Sale of electrical energy.....	1,145 35	
Sale of race programs.....	395 05	
Advertising in race program.....	150 00	
Special prizes.....	5,592 17	
Sacramento Chamber of Commerce.....	\$4,000 00	
National Duroc Jersey Association.....	800 00	
American Poland-China Association.....	450 00	
American Shorthorn Breeders' Association.....	842 17	
I. L. Borden stake, account transferred from savings account.....	12,507 73	
Sale of junk—engine collision.....	1,937 32	
Sale of miscellaneous equipment.....	200 00	
Sale of old motor.....	175 00	
Sale of old sacks.....	7 84	
Miscellaneous receipts.....	883 00	
Rent of tents.....	\$500 00	
Stall rent.....	370 50	
Pasture receipts.....	22 50	
Refunded expenses.....	661 65	
Sale of butter and cheese exhibits.....	251 53	
Excess racing fees received and refunded.....	240 00	

EXPENDITURES.

July 1, 1917, to June 30, 1918.

Operation of State Fair.....	\$85,304 34	
Attractions.....	\$5,534 15	
Railroad engine collision.....	8,379 56	
Aviation.....	2,675 00	
Band contests.....	1,578 50	
Official band.....	559 00	
Meals for institution bands.....	46 00	
Special music.....	75 00	
Judging band contests.....	600 00	
Chariot races.....	300 00	
Hay wagon rubes.....	25 00	
Trick horse.....	3,000 00	
Fire works.....	7 40	
Stationery and printing.....	653 70	
Traveling expense.....	37,708 41	
Exhibits.....	\$24,924 94	
Cash premiums.....	344 85	
Trophies.....	509 12	
Medals.....	328 13	
Ribbons.....	1,570 40	
Judging.....	80 50	
Refunds of fees.....	4,301 85	
Salary and wages.....	2,351 13	
Printing and stationery.....	100 00	
Postage.....	885 00	
Traveling expense.....	284 91	
Express, freight, cartage.....	297 90	
Miscellaneous expense.....	251 53	
Sale of butter and cheese, exhibit.....		
Races.....	21,507 65	
Advertising.....	\$367 80	
Purses—harness.....	17,868 25	
Purses—running.....	2,200 00	
Special purses.....	40 00	
Refund of entry fees.....	305 00	
Special cup.....	50 00	
Postage.....	35 00	
Stationery and printing.....	297 10	
Salaries.....	395 00	
Publicity.....		
Salary and wages.....	\$789 80	
Postage.....	475 25	
Express, freight, cartage.....	3 13	
Expense.....	110 00	
Printing.....	311 67	
Posters, pennants, brotters.....	936 97	
Newspaper advertising.....	4,312 15	
Distributing advertising.....	67 00	
	7,954 97	

CALIFORNIA STATE BOARD OF AGRICULTURE.

xi

Outs		
Traveling expense	44 85	
Motion picture	28 06	
Maintenance of buildings and grounds	32 00	29,006 72
Salary and wages	\$17,704 08	
Materials and supplies	2,066 89	
Stable expense	276 26	
Water hose	498 20	
Express, freight, cartage	513 23	
Extra teams	1,628 45	
Miscellaneous expense	1,017 08	
White washing	886 00	
Land lease	10 00	
Tents and repairs to tents	3,085 85	
Decorating	720 00	
Light and power	1,287 60	
Water	45 00	5,052 44
Gathering statistics		
Salary	\$2,400 00	
Printing and stationery	2,277 77	
Postage	250 00	
Maps	175 00	
Traveling expense	579 67	2,885 54
Directors traveling expense		
Traveling expense	\$2,030 04	15,129 56
Lunches	565 50	
Office expense		
Salaries	\$9,117 56	
Printing and stationery	1,033 09	
Auto expense	549 81	
Postage	625 01	
Traveling expense	564 88	
Express, freight, cartage	37 22	
Telephones, telegrams	389 65	
Revolving fund	500 00	
Refunds	241 25	
General expense	588 51	
Poling of building and grounds	1,177 50	
1917 dues American Association of Fairs	35 00	
1918 dues American Association of Fairs	35 00	
1917 dues National Trot Association	100 00	
1918 dues National Trot Association	105 00	
Land acquired	8,569 51	
Furniture—equipment	3,298 57	
Expended by Engineering Department	49,777 79	
Agricultural Pavilion	\$38,233 75	
Woman's Building	10 52	
Machinery Hall	282 61	
Drainage of sewerage	315 06	
Repairs to stock barns	9,679 53	
Miscellaneous expense	6,253 43	
Balance on hand		9,982 13
Total		\$200,686 60

THE CALIFORNIA STATE FAIR—VOCATIONAL DEPARTMENT.

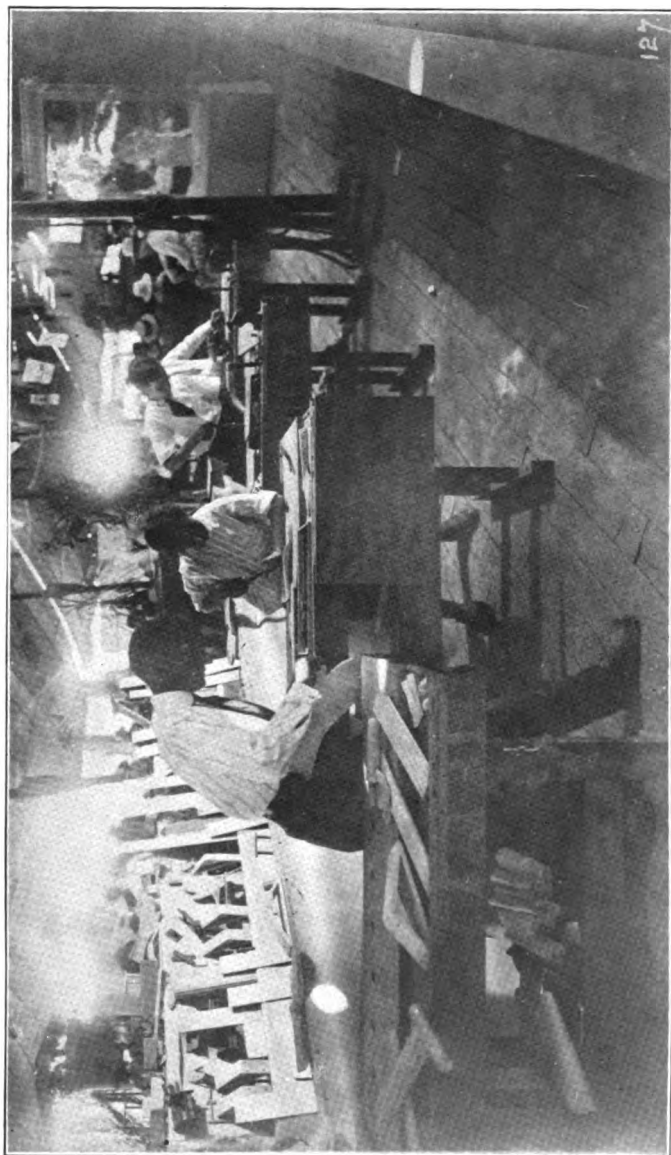
By E. FRANKLIN, Vice President State Board of Agriculture. Chairman
Vocational Committee.

Broadly viewed, the California State Fair is an educational institution. Perhaps it may not have always been regarded in this light, but the fact remains, nevertheless, that fundamentally its purpose is to instruct. At this great annual exposition the directors of the State Board of Agriculture endeavor to bring together in attractive display, specimens of the best products that the state produces in our varied industries, such as livestock, horticulture, agriculture, viticulture, manufactures, mining, useful and fine arts, etc. By directing attention to the excellence of the prize-winning articles in each field of endeavor, we strive to encourage and to stimulate producers to follow approved ideas and to attempt to excel the high standards that have been attained.

The scope of the State Fair along educational lines is broadening each year. We have long since broken away from the narrow limits of the past, and we are now reaching out in every direction in matters that concern the welfare of the state in an endeavor to enlighten and to instruct for the benefit of the people as a whole. It may seem somewhat paradoxical, but it is the truth, that one of the departments of the state government that we are now exploiting to the great benefit of all, is the state's educational system. I refer particularly to the vocational department exhibits, the growth of which has been nothing less than phenomenal.

A small beginning in this work was made two years ago. The display, however, was a pronounced success. Last year a much larger and more varied exhibit was made, representing the work of thousands of students in different schools in many counties in the state. So successful was the exhibit in 1917 that still more space and larger premiums have been set aside for the 1918 exhibit, which will not only be one of the largest ever made in the state, but it will also be one of the most interesting at the state fair grounds.

Just as the State Fair has broadened its scope of usefulness in recent years, so has the state's educational system widened its field of effort. The modern schools no longer instruct from the book alone, but they train the hand as well as the mind; they do not force knowledge upon the young mind at the expense of health, but they endeavor to build stronger and more vigorous bodies at the same time that they are directing thought along lines that make for useful citizenship. In short, the schools of today teach the useful mechanical arts, as well



School Exhibit. California State Fair, 1917. Manual Training Class Working for Red Cross.

as lay the foundations for the professions; they coordinate healthful recreation with necessary study. How appropriate it is then, that the State Fair, fundamentally educational, and the state school system should cooperate in an endeavor to show to the people of the state just what our schools are doing in this important vocational work.

It is, indeed, a sight that can not but impress itself upon the minds of the visitors, as they walk through the exhibit building and see the handiwork of school children, ranging from the kindergarten classes to those of the high schools. As one inspects the exhibit even casually, and traces the work of the child through the various gradations, from the little toy made by the youthful beginner probably not yet five years of age, to the wireless telegraph instrument operated with skill by the high school student, the impression made upon the mind emphasizes the wonderful advance made in modern educational methods over the days when our parents received their instruction in the village schools.

In the exhibit at the California State Fair the full scope of vocational education is demonstrated. Girls are shown working in every branch of domestic science, including cooking, dressmaking, millinery and other useful arts that our mothers learned at home, while the boys are taught everything in the mechanical line from the driving of a nail to the assembling of an aeroplane. It is interesting to trace the gradual steps of the work and to note the development of the child's mind, as the visitor passes successively from the displays of the lower grades to those of the higher. The crude little doll dress that some little miss has proudly cut and sewed to a pattern is first seen, then a frock that is just a degree better, then one more finished still, and so on until the display brings one to a fashionable costume and bonnet skillfully made by a girl in her teens after much thought and study; and in the display of boys' work, one sees the crude toy boat whittled by some little boy, then more useful articles, then ornamental lamps, furniture, etc., and finally the skillful repair work on an automobile by the young man just finishing his course. Surely no more impressive display of our advanced educational methods, or of the gradual development of the human brain properly directed, could be made.

In the important domestic science department every phase of food preparation is visualized; not only that, but the food value of various commodities are studied and the girl learns the relative value in the kitchen of milk, cheese, eggs, meat, vegetables, and fruit. Furthermore, she is taught economy in the home management, and many of the girls take valuable practical knowledge from the school home to their mothers. Demonstrations in Red Cross work are given—girls are taught in first aid, are shown how to bandage wounds, are trained in the use of the clinical thermometer, etc. The lessons learned are for

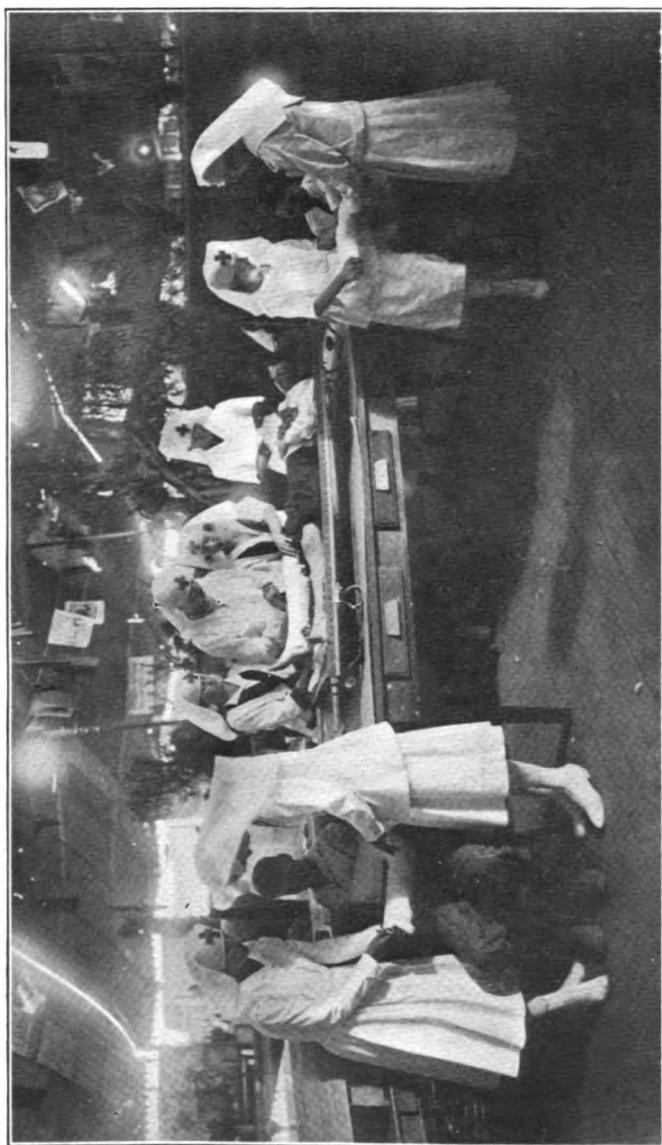
the betterment of housekeeping and are brought forcibly before the eyes of the visitor, who is shown how the schools spread knowledge that makes for happy people and healthy homes.

The exhibitions of work by boys is no less varied or interesting. It includes the making of model aeroplanes, blacksmith work, chemical demonstrations, finishing of large pieces of machinery and other things. Some very remarkable specimens of cabinet work were on exhibition in 1917, and in fact almost every phase of science, now so closely related to our everyday life, was to be seen in this exhibit.

The little embryo artist showed how to make straight lines and pot hooks, while the drawings of some of the finished students were worthy of a place in an art gallery.

The exhibits in the agricultural section of the Vocational Department were well worthy of being placed in competition with those made by the practical farmer. They showed study in the selection of seed, assiduous care in the growth and cultivation of the plant, and marked skill in its final production. This display of agricultural products proved convincingly that the farming interests of our country are being well looked after by our vocational teachers.

Every encouragement should be given to the Vocational Department at the State Fair. It has become one of the most important at the fair grounds and will continue to be so. Its benefits are many. It encourages the students of the state's schools to do their best in this work, knowing that their work will be displayed at the State Fair; it awakens an interest in the State Fair in every school child in California, and from an advertising standpoint its benefits are inestimable; and lastly, it is encouraging a great work that tends to uplift the physical and mental standards of the citizens of our beloved state. Premiums paid to the prize winners in this department will be repaid to the state ten thousandfold in years to come in a healthful, industrious and intellectual citizenry. Surely, nothing is more important to the future of our state that the correct training, in mind and body, of our boys and girls.



Red Cross Exhibit by Sacramento County Schools, California State Fair, 1917.

THE MEAT INDUSTRY FROM ITS INCEPTION, AND ITS POSSIBILITIES UNDER MODERN CONDITIONS.

By H. A. JASTRO, Director State Board of Agriculture. Chairman Livestock and Dairy Committee.

The development of the stock raising industry of the West is a matter of history. Under the Spanish rule it was an important, if not the most important, industry in that great region which lies along the Pacific coast, between San Diego and Cape Mendocino. As early as 1800, great herds of cattle and horses roamed over the plains and mountains of that section, if we may judge from the exports of hides, for which they were almost entirely raised. They numbered possibly as many head as we have in the same area today.

When, in 1848, the country passed from the dominion of Mexico to the United States, a new era set in, and the discovery of gold forced the primitive Spanish *ranchero* together with the Indian into the background, so that the conditions of stock raising gradually changed, and while the great herds disappeared, their places were taken by stock of better breed and more value. In those early days, cattle were raised and fattened almost exclusively on the nutritious native grasses in the state, which were ample to supply the demands, but as population began to increase and lands were utilized for agriculture, the native grasses became fed out to a great extent, and an entire change took place, so far as stock raising is concerned, until finally irrigation became the vogue on a gigantic scale in the great San Joaquin and Sacramento valleys, as well as other portions of California, and crops were raised, such as alfalfa, clover, sorghum, milo maize and kaffir corn for stock feeding purposes. The resultant practice of feeding cattle on cultivated feeds, required the cattlemen to buy better stock, so as to raise better beef cattle for market. Tens of thousands of cattle are now being fed in the San Joaquin and Sacramento valleys on alfalfa and other cultivated foodstuffs.

Since the organization of the Forest Service, great benefit has accrued to the stockmen of this country, and a great many cattle are pastured within the Forest Reserve during the summer season, which are brought down to the valley for finishing purposes for winter beef.

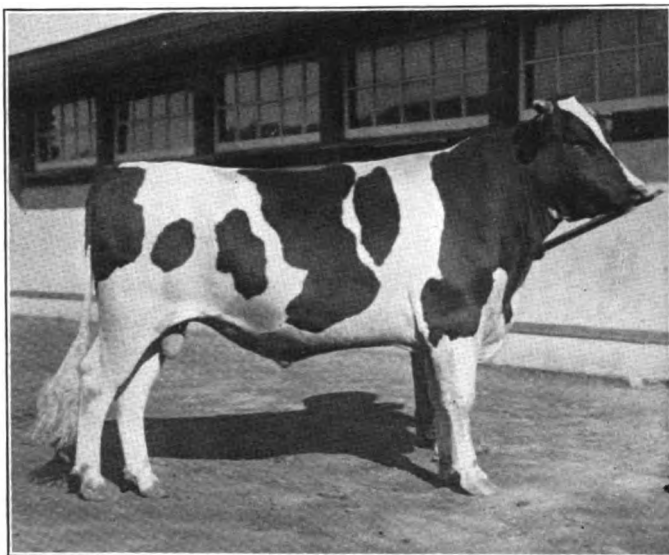
Too much credit can not be given the University Farm School at Davis, to whose splendid efforts along educational lines, the improvement in breeding stock is attributable, and as its foundations have been laid broad and deep, it is inevitable that still greater and further-reaching influence will be exerted throughout the state on the cattle and dairy industry. Another important factor in the progress of our industry is the State Board of Agriculture and the annual state fairs at Sacramento, organized by them, bringing together the ablest men in

the business of providing meat food products for the rapidly increasing population of the state, and exhibiting the best specimens of well bred cattle.

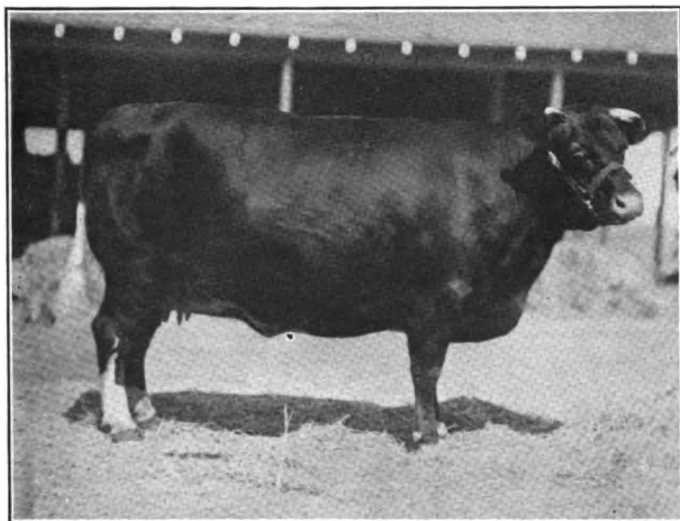
It must not be overlooked, moreover, that the cattle business, be it ever so highly specialized and efficiently conducted, can not be maintained on an insecure basis of haphazard marketing methods, and so we have the benefit of the experience of the great producers and feeders gained through their membership in the American National Livestock Association whose object has been for many years the upbuilding and general improvement of the cattle industry at large, and of later years, the protection of the stockgrowers from the unfair methods of a few, monopolizing the markets, without competition. Happily, the elimination of this grave menace is in sight, and it is to be sincerely hoped that a speedy solution of this vexing problem will result in more substantial profit with resultant encouragement to the stockgrowers of the Nation. The cattlemen of this state are to be congratulated on having a partially open market for their produce; the local packers do not occupy as important a position in the live stock industry in California, as the packers in the East, due to the fact that the great majority of the cattlemen maintain an adequate supply of foodstuffs, enabling them to hold their cattle for sale at remunerative prices on their ranches, although it is true that the packers have made strenuous but unsuccessful efforts to secure control of the livestock industry in this state through an effort to establish stock yards, which in my judgment would be decidedly detrimental to the unrestricted marketing of livestock, as it would compel the growers to accept the price offered them at their yards.

We also must not overlook the splendid efforts of the State Board of Agriculture and the several cattlemen's associations of the state, in their endeavor to have the new hide and brand bill put into operation, for the protection of cattle herds from the depredations of rustlers on the range.

In conclusion, let it be said that the cattle industry has reached a point where we find a spirit of co-operation and mutual encouragement existing in a very marked degree amongst all branches of the livestock industry, which naturally will assure us permanency and progress, and consequent prosperity. The only disturbing feature of the situation lies in the condition brought about by the great war, but our patriotism shall not be found wanting in the national emergency, and it behooves us to put aside the personal equation and bend our efforts toward the promotion of the war program of the government, to the end that our supply of live stock may be increased and conserved, while at the same time, our people are adequately supplied with the most necessary life sustaining meat products for which our state has ever been noted.



"King Segis Alcartra Prilly." No. 192705. Junior and Grand Champion Holstein Bull, California State Fair, 1917. Exhibited by Bridgeford Co., Knightsen, California.



Hopland Lassie. No. 179452. Grand Champion Shorthorn Cow, California State Fair, 1917. Exhibited by Hopland Stock Farm, Hopland, California.

GRAPE GROWING IN CALIFORNIA.

By THEO. GIER, Director State Board of Agriculture. Chairman Agriculture and Viticulture Committee.

The grape growing industry of California dates back to the Mission fathers, who set up the standard of Christianity and civilization in this land of promise more than one hundred and fifty years ago. Vines set out by the Padres are still bearing fruit. A giant vine at the San Gabriel Mission in Los Angeles County is a noteworthy example. The Santa Barbara Mission also has bearing grape vines which were set out at the period of the American Revolution. These vineyards, which were planted from seedlings brought from Sardinia, were of the Mission variety of grape, which are still grown in many sections of the state.

The growth of the industry has been marvelous, and today, viticulture stands as one of the corner stones of California's material prosperity. The State Board of Viticultural Commissioners, in its last report, conservatively estimates the investment in viticulture in California at one hundred fifty million dollars, and says, "We find that the income covering the single season of 1917 reached the almost unbelievable figure of sixty-eight million dollars." These figures include the returns from raisins, table grapes, and wine grapes, and offer opportunity for favorable comparison with any other element of the state's prosperity and wealth.

The United States Census of 1910 gave, in fifty-five of the fifty-eight counties in California, a total of nearly one hundred fifty million bearing grape vines. While it is quite possible that many of these have gone out of existence, the constantly growing demand for shipping grapes has caused the yearly planting of an increased acreage, and it is more than probable that the total number of vines exceeds the figure given above. Many of these vines are wine-making varieties and the question of the future of this branch of the industry prevents the setting out of new vineyards for this purpose. This condition, however, does not apply to raisin grapes nor shipping grapes, which have attained the premier position in the industry.

The most important element of the industry is the production of raisins, in which California leads the world. The season of 1917 was particularly favorable. The viticultural commission estimates that five hundred thousand tons of ripe grapes were used in the raisin industry, producing one hundred sixty-three thousand tons of raisins, which brought a return of twenty-five million dollars to the wealth of the state.

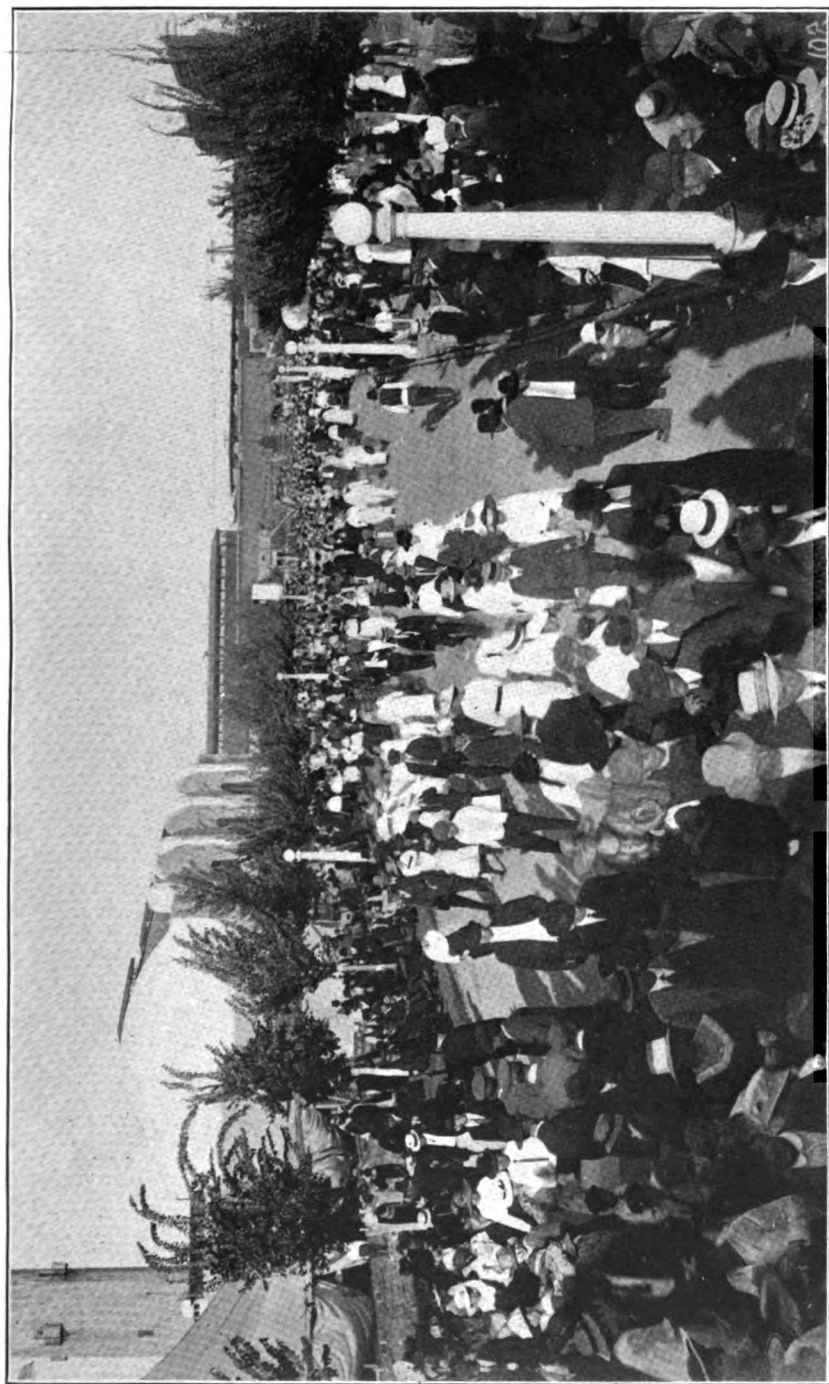
The shipping of table grapes stood second in importance, 16,564 car loads of grapes being shipped, mainly to Eastern markets, representing in the aggregate, 174,514 tons of grapes, bringing a gross return of

eighteen and a half million dollars. These figures include 4,000 car loads of wine grapes which were shipped in lug boxes, to be used in Eastern wineries in conjunction with local grapes for the making of wines. The gross returns for table grapes would have been larger, had refrigerator cars been available. The commission states that the actual shipments for 1917 were much larger than those of any previous year. These grapes were produced in approximately twenty counties.

The wineries of the state in 1917 used 382,000 tons of grapes. For these they paid to the growers over six million dollars. The finished product had a value of \$17,750,000. The combined figures of these three branches of viticultural industry shows a production in 1917 of more than a million tons of grapes.

Reports compiled from official sources give an adequate idea of the growth of the grape shipping industry in the last ten years. In 1906 the total shipments were slightly in excess of 2,000 carloads, and ten years later, in 1916, the shipments had reached 9,700 carloads, which more than equaled all other shipments of deciduous fruit to Eastern markets. This is due to the longer shipping season, especially in good weather when shipments go East during November and even later. There is no reason to believe that the limit has been reached, and many growers in the state are planning to work over their wine grapes where possible, and graft table grapes on the wine bearing stock. In view of the uncertain future of the wine industry, this practice may prove to be the solution of one of California's problems and may help to save property worth thousands of dollars, which would otherwise be lost, should adverse legislation be made effective.

For more than a century after the first vineyards were planted by the Franciscan Fathers, grape growing was not increased to any great extent. In the Spanish days the vineyards produced sufficient fruit for the wants of the small population. In 1858 there were 6,500 acres devoted to vineyards in California. In twenty years following this had increased to 30,000 acres. About this time the development of viticulture in Fresno County and the San Joaquin Valley began, and for the next twenty years the vineyards in the state multiplied with marvelous rapidity. During this period Phylloxera developed to a dangerous extent and thousands of the vines were destroyed. In fact, the entire industry was gravely threatened. By use of resistant root stock, this danger was largely overcome, though vineyardists are constantly working in conjunction with the State Board of Viticulture and the authorities of the state university and federal government in fighting this dangerous pest. California is the only section of the United States where the fine flavored European grapes are produced under natural conditions, and these vines are particularly susceptible to



View from Main Entrance. California State Fair Grounds, Sacramento, Cal.

the ravages of Phylloxera. Of the hundred or more varieties of grapes produced in California, the most important are of European varieties of the *Vinifera* family. The best known varieties of American grapes are raised in but few localities of this state. The principal shipping grape is the Flame Tokay, while the shipment of Malagas and Emperors packed in sawdust has developed into a business of considerable magnitude. The principal raisin grape is the Muscat of Alexandria which is grown in large quantities in Fresno and Tulare counties, the former being the raisin center of the United States, if not of the world. There is practically no limit to the market that can be obtained for California raisins. They are superior in quality to the imported raisin, of which the United States consumes millions of pounds annually. The exports of the raisins from this state are constantly increasing. Under existing conditions, where transportation is a vital factor, the volume of imports and exports should be reduced to the lowest possible figure. California will then be called upon to furnish the American market with raisins, at prices which will be highly profitable to the growers, even should the output be doubled or trebled. The demand for table grapes will also grow as improved facilities for shipping are developed. At this time California grapes are available for the Christmas holiday season throughout the United States. This business will grow in volume and in time the grapes from this state will displace to a large extent the Almeria grape from Spain, which has, until recently, had the monopoly of this highly remunerative phase of the industry.

All these factors argue for the stability and prosperity of the viticultural industry in California. Even conceding that one branch of the industry, the wine grape, has passed its zenith, the warm hillsides and valleys of California, with their soil peculiarly adapted to grape growing, will continue to yield abundant crops, contributing a full share to the wealth and prosperity of the state and to the health and happiness of its people and their patrons.

THE FUTURE POSSIBILITIES OF THE STATE FAIR GROUNDS AND THE VALUE OF THE STATE FAIR IN DEVELOPING THE AGRICULTURAL AND HORTICULTURAL RESOURCES OF CALIFORNIA.

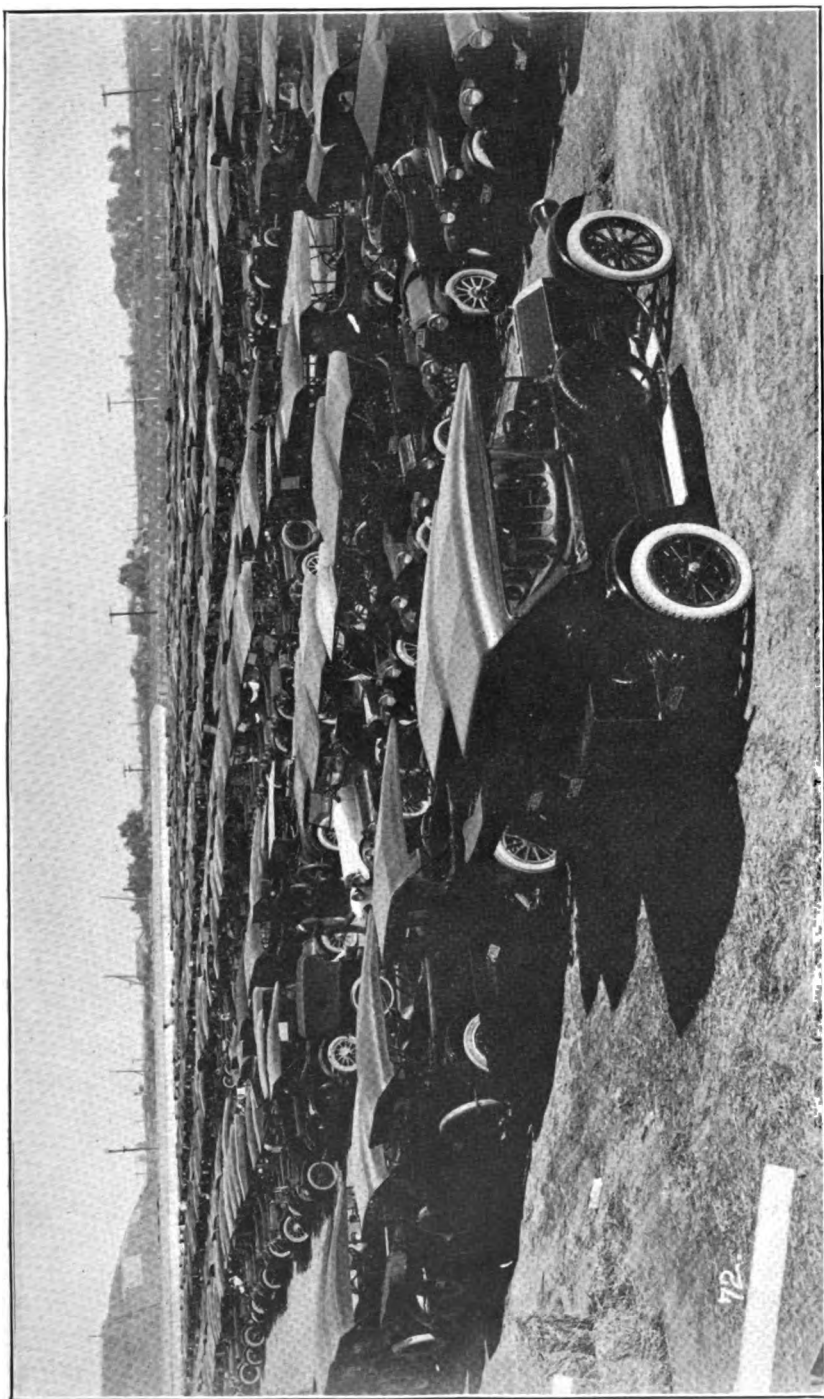
By CHAS. J. CHENU, Director State Board of Agriculture. Chairman Grounds and Track Committee.

The typical state fair in the United States is an institution that has been evolved from American conditions and American standards. In Europe, fairs are predicated on the principle of selling, while the American standard inclines rather to comparisons of methods and results, with premiums to stimulate a high class production. The commercial angle is not lost sight of, however, and the aggregate of sales made and of orders taken at the California State Fair, each year, are alone sufficient to justify the existence of the institution. More than one breeder has gone home from the fair with a string of premium ribbons and a substantial cash award, as the primary result of his enterprise, and also with orders booked for all the surplus stock on his farm as a further reward, and as a stimulation to a greater effort. Manufacturers and producers have done equally well from a business viewpoint. A volume of sales exceeding \$60,000.00 for a week's effort by one establishment is the record at the California State Fair, and doubtless will be excelled in the future.

These conditions which have accrued to our state fair during its sixty-four years of life, justify its directors in planning to have the plant perfected. The present grounds were first opened in the year 1906, with horseracing and livestock exhibits; the grand stand and barns being only temporary structures. At the time they were built with the idea that they would be removed in a couple of years and permanent structures be provided in their place. The exhibit buildings were first used at the fair of 1909. They were not of a permanent character. The legislature of later years provided the funds for some permanent buildings which have been built, and the good work should continue until all the structures on the grounds are permanent in character.

I believe it is clearly possible to develop the fair grounds so that they shall be surpassed by none in this country. The benefit of the fair to the state is unquestioned and our producers may profit by the experience gained in Eastern States where adequate facilities have been provided for state fairs, with the result that millions of dollars have been added to the wealth of the respective states. At present our state fair grounds constitute but a nucleus for the plant required to properly exploit the products of California.

The grounds contain approximately one hundred acres, and adoption of plans under consideration will necessitate the acquirement of



One of the Parking Spaces. California State Fair Grounds, Sacramento, California.

forty or fifty acres more, as the fair is an institution that will grow with the state. This land should be acquired as soon as possible. The completion of the new agricultural pavilion will provide space to house the state's display of soil products for a long time to come. This fact further emphasizes the necessity of placing the other products of the state in proper buildings. A general plan for this purpose, which could be completed gradually as appropriations might be made available by the legislature, is necessary in order that the grounds may be improved to the best advantage. Several such plans have been discussed by the Board of Agriculture at different times, though the details have never been fully agreed upon. This condition must be changed if the state fair is to reach its highest point of effectiveness for the benefit of the state at large.

There is no difference of opinion as to the policy of concentrating the livestock department. Experience has demonstrated that the present divided system does not satisfy anybody, and I am convinced that the location of all the livestock should be along the southern portion of the grounds. This would require moving the horse barns, the erection of the new cattle and swine sheds or pavilions, with stadiums or other show rings for horses and cattle, and a proper show ring or rings, conveniently located, for the sheep and swine. Several Eastern fairs have solved this problem, and it will not be difficult to arrange structures that will permanently house the pure bred stock, which are a feature of the fair, and at the same time provide conveniences for judging and for spectators.

The request of the University of California that a portion of the grounds and buildings be assigned to them as a permanent location should be granted to encourage and enable the university to carry on its great educational work in conjunction with the state fair, as there is no equal opportunity to reach so great a number of people. There should be an educational building where the vocational work of schools could be properly shown and demonstrated.

The changed plans will necessitate making provision to park automobiles. Thousands of visitors to the fair come in their own cars, and the problem of parking is acute. One plan suggested has been to use the center field of the race track, entrance and exit to the parking space being through tunnels under the track. This would be an ideal solution of the problem. It can be worked out and would not interfere to any extent with the other uses to which the infield could be put.

The increasing display of tractors, auto trucks, and automobiles at the fair must receive attention, as the importance of these industries is constantly increasing. The removal of the sheep and swine sheds from the north and west sides of the grounds will leave a space north

of the Poultry Building which would make an ideal location for these industries. There would be room to extend them to the extreme northern limits of the grounds, which would take care of any expansion for some years.

The decision to house vocational exhibits temporarily in Machinery Hall makes it necessary to find a proper location for the display of the heavier types of pumping and irrigation machinery. For several years the displays in this line have consisted mainly of irrigation outfits under the general headings of power, pump, and pipe devices. Exhibitors have had difficulty in showing out-door and field irrigation devices in a building, and a plan should be evolved by which either surface or underground irrigating pipes with valves, gates and controlling appliances can be shown under working conditions. This will not be a matter of much expense, but a proper location should be set aside for this purpose. In view of the immense wealth added to California's total through her irrigation systems, and the unquestioned wealth which will be added in the future, the irrigation department of the fair should be given every possible attention.

To accommodate the thousands of visitors to the state fair, new grand stands must be provided. The present structures were erected as temporary, and have long since served their purpose. The grounds must have modern grand stands of safe construction with accommodations up to date. Steel frames to these structures would permit the use of interiors for exhibit purposes, and for comparatively small additional expense, combination grand stands and exhibit pavilions could be provided. The proposed general plan of the fair grounds should provide for them in the general building program.

The request of the university for space surrounding the Dairy Building, when granted, will make it necessary to provide facilities for representatives of dairy machinery, who constitute a very important factor in the success of the fair. These exhibits should be located conveniently to the dairy cattle sheds, as many visitors to the fair will have a common interest in both of these exhibits.

Transportation facilities of the fair grounds should receive close study. Exhibitors at the fair have frequently complained of delay in getting in and out of the grounds with their freight. If the livestock is located along the southern end of the grounds, a separate track should be provided for this department. The present spur track should be extended along the western fence to the northern limits of the grounds, which would greatly relieve the situation.

In this connection, it would also be well to study the facilities for street car service. The insufficiencies of service are apparent. The increasing use of automobiles, as a common carrier, however, may shortly compel the equipment of some place in the grounds for the

convenience of visitors coming or going in auto busses. Any permanent plan for the grounds should provide such facilities.

With the completion of the Agricultural Building, steps should be taken to provide for a complete system of beautifying the grounds. More trees are needed, especially shade trees. The lawns are a very attractive feature of the grounds and should be amplified, walks and roadways should be paved so the fair grounds will become an attractive resort, open to the people of the state throughout the year.

The State Fair grounds should be typical of the state, and the floral wealth of California, which is noted throughout the entire world, should be exemplified in this place where the people are invited for the purpose of instruction and recreation. All service wires should be placed underground and unsightly poles removed.

It has been suggested that space be set aside within the fair grounds for the State Highway Commission or others interested to lay down varied types of roadbed as an educational feature. Such a plan should meet with the approval of all concerned.

A necessary addition to the institution is a proper building, with sleeping quarters, showers, and all conveniences for those whose exhibits are of a nature that the men in charge can not leave the grounds.

Suggestions have been made that the board pursue the policy which has proven very successful in many Eastern fair grounds, of providing camping space for visitors from a distance who might come to the fair in their own conveyance. While very good camping grounds are provided by the city of Sacramento, one should be provided in or near the fair grounds.

A place should also be provided for such institutions as the model camp of Naval Apprentices which has been a feature of the fair in recent years, or for students from Indian schools or for a State Fair School, where selected boys from the several counties could camp while participating in the activities of the fair. There is no question but that good results would follow such a course and no better argument could be advanced for procuring additional land.

This institution can only attain its greatest degree of benefit by making it possible and convenient for visitors to see the fair from every angle and to offer inducements that will enable people from every section of the state to take part in the exposition and exploitation of its resources and products. Conveniences for people who come should be one of the first subjects for study and I am sure that the completion of the plan having this end in view, when known to the people throughout the state, will result in many thousands more coming to the state fair, thus adding in every way to its success and justifying its continuance and improvement.

SHEEP AND GOAT INDUSTRY IN CALIFORNIA.

By T. H. RAMSAY, Director State Board of Agriculture.

No branch of agriculture in this state and nation is undergoing such rapid changes as both of these industries, but more particularly the sheep industry.

The principal cause of this change is the great difference in range conditions. Range bands are becoming smaller and fewer each year. This is due, in mountain and foothill ranges, to settlement by the homesteader; and in the valleys, land formerly used for sheep ranges on a large scale, is found to be much more remunerative by growing grain and rice. Many upland sheep pastures have been transformed into grainfields the last two years. Many acres of alkali and shallow land, formerly used for sheep pasture, are now producing tons of valuable rice.

Many old Spanish land grants that were formerly used principally for grain production, but which also furnished an abundance of rich stubble feed for sheep in the fall, are a thing of the past. They have been subdivided and are now converted into hundreds of small alfalfa farms or orchards.

All these changed conditions have forced many sheepmen to quit altogether and others to reduce their number of sheep. This curtailment in range bands can only be partly replaced by the farm flocks.

The change in feed conditions is also accompanied by a change in the type of sheep produced. A few years ago about 90 per cent of the range sheep (and there were but few others) were of the Merino or fine wool type. Today, fully 25 per cent of the range ewes are of the cross-bred type and more than 50 per cent of the lambs raised are strictly the mutton type and are sold at six months of age or less.

Inasmuch as we have passed through a period of "Eat no Lamb," it is not amiss here to explain why this campaign was abandoned. The fact that our ranges are fully stocked makes it necessary to sell for mutton annually a number of sheep equal to the number produced each year, after replacing the loss for that year.

The number of sheep to be sold annually is not a question for the sheepman to decide, unless he wishes to reduce the number of sheep carried, for it is impossible for him to increase the number of his flock. That is determined by fate, you may say, or by all the elements combined, which determines the number of lambs raised that year. The only thing left for him to decide is the class of sheep to be sold annually, old ewes, wethers or lambs.

The sheepman naturally tries to sell that which is most profitable to him. This means, in other words, that class which can be produced

most economically. The mutton that can be produced the cheapest is better, not alone for the producer, but for the consumer as well. The producer has found, by experience, that the proper age to market mutton is the six months old lamb, while it is still running with the mother ewe but before it is weaned and made to shift for itself. This is also the time when it is most delicious for the consumer. At that age lambs dress from 35 to 40 pounds, say 37 pounds. Suppose the producer is compelled to carry that lamb over another year, at which time it would perhaps dress 47 pounds, showing a gain in dressed weight of ten pounds, for the second year's growth. If the mother ewe, now sold for mutton, had been carried in place of this nonproducing yearling, for twelve months, she would have produced another 37 pound lamb, or in two years the mother ewe would have produced two 37 pound lambs, or 74 pounds of the best mutton by selling each lamb at about six months of age.

By this system of marketing we have produced 27 pounds more meat, at less cost per pound in two years, than by carrying the lamb until it becomes a matured sheep. The time to pick fruit is when it is ripe; the time to market a mutton lamb is just before it is weaned; after that it begins to shrink, the same as ripe fruit.

Marketing lambs from the mother ewe enables the consumer to procure the meat at its best, instead of being forced to buy matured wethers and old ewes, or go without mutton. Patriotic consumers should know that they are justified in eating all the lamb they desire. Save the beef and cured meats for the "boys over there." The consumer should know that range conditions are such that the sheepman is compelled annually to sell for mutton, either the mother ewe or the fat lamb, as he can not increase the size of his flock.

Having endeavored to justify the claim that making mutton of the lamb, rather than of the wether, is the most practical method of producing mutton, and having shown that range conditions are rapidly becoming more serious, it naturally follows that the small farmer in California should take up the business of raising mutton lambs to supply the demand.

Climatic and feed conditions in this state are ideal for this business, but the farmers have not taken to the business as readily as they should. It is a mistaken idea that sheep can be allowed to shift for themselves. They must have some attention, but if given that attention will become most profitable. A small band of sheep on any ranch is a big asset. There is money coming in from the flock at different times of the year from the sale of lambs and wool.

One great menace to the industry, if handled on the farm, is the sheep killing dog, and too often will it be found that the pet dog is

the one that is killing the sheep, but in these days of Hooverizing it is better to forego the pleasure of having a pet dog, if it is found that the flock must suffer because of him.

There may be times on the farm when pastures will not be available for the flock of sheep, but such periods can easily be bridged over by the use of hay. Most every farm has corners growing weeds that might be better turned into mutton and wool.

It is not well, however, to begin with less than thirty or forty head of ewes, and preferably these should be of the large Merino, mutton breeds or cross-bred type, and a pure bred mutton type ram used; this cross producing a lamb that will weigh from 75 to 80 pounds at four and a half to five months of age, and by breeding so as to lamb in the latter part of December or first part of January such lambs can be sold at about \$10.00 per head.

The average ewe kept on the farm will shear nine to ten pounds of wool, and under prevailing conditions this wool would be worth 50 cents per pound, but even taking pre-war prices, one could figure on 25 cents per pound, so that the combination of mutton and wool, even after making replacements for losses of sheep, it can readily be seen that a small flock on the farm will give a handsome return. In Ohio there are only a few flocks in excess of 200 head, although that state ranks as one of the largest sheep raising states in the Union.

In selecting a foundation flock, great care should be taken not to purchase old broken mouthed ewes, as has been too often the custom. Four to six-year-old ewes should be secured, if possible, and if it is necessary to buy older stock, the purchase should be made with the idea of disposing of same from year to year. Some follow this custom with considerable profit; that is to say, a flock is purchased in the fall and sold the following spring, either with the lambs or fattened off after the lambs have been disposed of. As a rule there is too large a loss in old toothless ewes to justify their purchase by farmers who wish to start in the business, and in many cases this procedure has resulted in disappointments.

The goat industry has been followed in California with considerable profit, especially in the rougher sections of the state, where grazing privileges have been secured on government areas at very small expense, and under such conditions goats thrive, and as stated, bring good returns.

The business is one to which people generally do not take, neither could it be suggested that goats will be found desirable for the small farmer; this observation being intended for the range goat rather than for the milking strains.

It is erroneous to suppose that the goat will be profitable, however, if allowed to shift for himself, for while it is true the goat is good for cleaning land and can be grazed on very rough brushy areas, they are very susceptible to forage poisoning, and the kids are difficult to raise, more so than lambs. They must be kept dry and warm for a few days after being dropped.

The goat is naturally a vexatious animal to handle and its customs must be studied by any one expecting to make a success of the business, but if one has suitable range and will take the trouble to learn something of the business they need not hesitate as to the outcome. They can be handled on the high Coast Range or Sierra Nevada mountains during the summer months and brought to the foothills for the winter, consuming feed that would otherwise be lost.

The mohair may not be as staple as wool, the market being somewhat uncertain, but with the greater use of mohair in making automobile tops, the demand has been naturally increased and it would seem as though the future would bring an assured market.

The high price of mutton has also turned the attention of the butcher to goat meat, and thousands of wethers have been sold in the larger markets of our state. The meat is not as palatable, perhaps, as mutton, although if not too old is a good substitute and finds ready sale.

The milking goat is receiving more attention, as time goes on, and is destined to become quite a factor in furnishing milk to families where it is not practical, or the expense is too great, to permit of keeping a cow. The milk records made by some of the better milking goats are phenomenal. There has been an unfounded prejudice against goat milk, but this is being eliminated. The milk is rich and healthful; goats not being subject to the many diseases to which cattle are.

Health ordinances are rapidly putting the cow out of the incorporated towns and in many instances the milking goat is taking its place; its presence in town not being considered as objectionable as the cow.

THE FUTURE OF THE POULTRY INDUSTRY IN CALIFORNIA.

By E. F. MITCHELL, Director State Board of Agriculture; Chairman of the Committee on Poultry.

Poultry husbandry today, under the stress of war conditions, is more than ever a vital factor in the world's food supply. National and state administrations recognize this fact and every day brings anew the message to produce and save to the utmost. The poultry keeper has responded cheerfully to this demand upon his time and his energy, and to every restriction that the authorities have found necessary to impose upon the business, and notwithstanding the fact that many breeders have turned their attention to other lines, the supply of poultry products in California has met all demands and a substantial surplus has been shipped from the state.

Paradoxical as this may appear, it is true that the situation in this state has so changed that approximately two hundred carloads of eggs have been shipped out of California within a year, whereas, but a short time ago, the ordinary yearly receipts of poultry and eggs amounted to five hundred carloads. It is true that some thousands of cases are still received each year from our sister states of the East, but the eggs brought in from across the Rocky Mountains are not sent in as a paying business proposition, but more as an effort to retain a foothold in a profitable market. In other words, every case of eggs that has been sent to California from the Middle Western States would have yielded a greater return to the producer if disposed of in a market nearer at hand, leaving the California market for the local producers. That this has been accomplished in a season when millstuffs were ranging about fifty dollars per ton is an additional tribute to the success of the California poultry man and woman. It is true that many fanciers were frightened by the high price of feed and disposed of their flocks in whole or in part, but those who were the backbone of the industry, the close students of the poultry game and those who had solved the problems of scientific care and feeding, were not affected, and instead of giving up, went out for more and better poultry and eggs to meet the changed conditions and in many instances found greater profits in improved methods.

These changes have made but little difference in the relative standing of the poultry sections. The Sonoma County section still holds premier place in the industry, followed by Southern California. The San Joaquin Valley section has made great advances, and Tulare has gained distinctive recognition as a poultry centre. The industry has grown throughout the valley and as far north as Sacramento County.

The Alameda section, or east bay counties, has not advanced as rapidly as others, though the industry is still a potent factor in the prosperity of this section. In the south coast counties, particularly Santa Cruz, great advances have been made, and from this section large shipments have gone to the East.

The business has been stabilized. Co-operative marketing methods have been adopted, and the era of low prices is past. The public has been educated to the food value of poultry products through the necessity of conserving beef, pork and mutton, and people are willing to pay the poultry keeper a fair price for his products. With a proper adjustment of prices for feedstuff, which depend to a great degree upon the needs of the government for cereals, the poultry husbandry-man of California may be relied upon to carry a full share of the burden laid upon the people of this nation in providing food for our Army and Navy, and for export to the Allies. The importance of this industry under normal conditions is greatly intensified today, but as with many other industries the greater the demand, the greater will be the production to meet it, and the qualified poultry man may look forward to a fair market and a fair price for his product during the duration of the war, with prospects of better profits when peace has been finally won.

OUR MAGNIFICENT DELTA LANDS.

By I. L. BORDEN. Director State Board of Agriculture. Chairman of Finance Committee.

The Delta or reclaimed lands in our home territory in San Joaquin and Contra Costa counties approximate about 300,000 acres. For nearly fifty years work has been progressing in the reclamation districts.

From the crude instruments and equipment, we now have the most thoroughly modern mechanical devices and machinery for converting vast acreages into beautiful home places and truck gardens, where hundreds of energetic people wrest wealth from the soil.

Through the introduction of powerful dredgers, great machines built here at home by local manufacturers, the wonderful levees now in use have been made possible.

These big dredgers are of the clam-shell type and are kept in constant operation under the direction of trained engineers, removing mud from the stream bottoms and depositing it upon the levees, thus forming protectorates for the lands during flood or high tide periods.

The reclamation of this peat land has caused the development of many notable industries in the delta sections and has been an important factor in the growth of Stockton, for the manufacturers of that city supply much of the machinery for all purposes, such as dyking, drainage, irrigation and cultivation equipment, and the great dredgers, Caterpillar tractors, gas engines, pumping plants, and machinery; plows and harvesters are built in Stockton, thus adding to the importance of our home county, for Stockton is the practical headquarters and distributing and trading point for the entire delta sections.

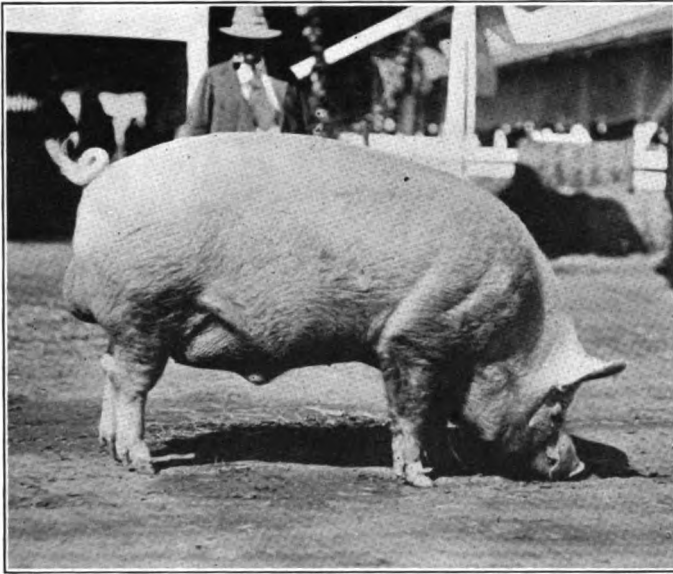
The character of the soil of these delta lands is peat and sediment, created by the overflow of the rivers and creeks. The soil is of many varieties and carries wonderful values in plant food, producing rich and abundant crops.

The soil of the reclaimed districts is considered as rich as that found in the famous lands along the Nile.

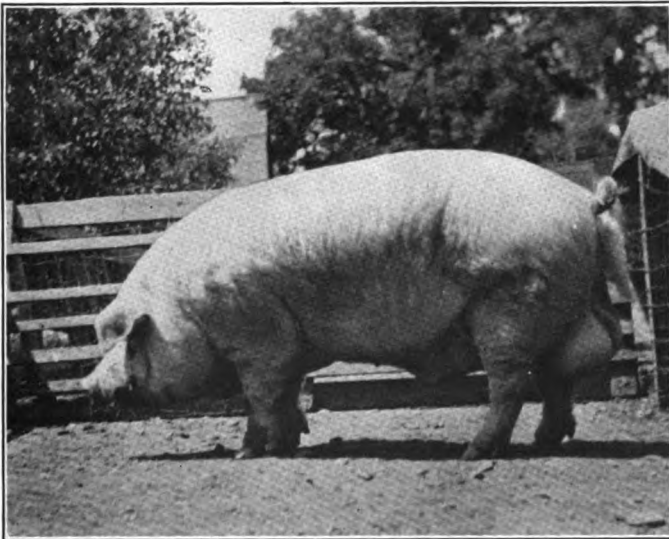
Soil experts pronounce the reclaimed lands of this section the richest in the world, and unexcelled for productive fertility and ease of cultivation, as well as susceptibility to irrigation.

When it is remembered that every month in the year is harvest time for some of the delta products, if the farmer is inclined to make it so, the value of these lands can be appreciated fully.

The reclaimed lands are all below the water level of the San Joaquin and other rivers, all being practically irrigated; not by flooding, but by irrigation systems admitting the water to ditches, whence it seeps through the soil.



Riverina Pioneer. No. 25957. Grand Champion Yorkshire Boar. California State Fair, 1917. Exhibited by Riverina Farms, Modesto, California.



Billiken. No. 37567. Grand Champion Chester White Boar, California State Fair, 1917. Exhibited by Chas. B. Cunningham, Mills, California.

By the active use of powerful pumping plants, a scientific system of circulation is maintained at the lowest reclamation levels, the water being pumped out of the low lands when necessary, thus maintaining the best of sanitary conditions.

Proper drainage is a necessity, and it is possible to maintain the right degree of moisture for the growing crops at a small cost, whether the season be wet or dry, by these pumping plants.

Under ordinary conditions these holdings would not be adaptable to cultivation, but when protected from overflow by great levees costing thousands of dollars, their productiveness makes new agricultural history.

California produces nearly 5,000,000 sacks of potatoes annually. More than two-thirds of these spuds are grown on the delta or reclaimed lands of San Joaquin and Contra Costa counties. The average yield per acre is from 100 to 150 sacks.

There is a steady demand for our home grown spuds from all parts of California, Arizona, New Mexico, and Texas, even Missouri River points being noted among the consumers.

The delta sections are heavy producers of onions, asparagus, beans, corn, sugar beets and garden vegetables, also of barley.

The asparagus of the delta lands is notable for its flavor and is another very profitable crop that is becoming more popular each season. There are about 6,000 acres of asparagus in bearing in the delta, the harvest of which begins in February and lasts till June.

This year the asparagus crop of this section brought high prices in the Eastern markets, many carloads going to Chicago and New York. Most of this product goes to the canneries, where it is canned and shipped to all parts of the world. California asparagus in cans is pronounced by epicures to be the best flavored in all the world.

The growing of alfalfa and establishment of dairy herds and plants in the delta country is another important item. The peat lands produce abundantly of alfalfa, and this is the most notable forage plant for the production of milk and rich cream. The annual profits from dairy herds are most attractive, and adds to the importance of this section of the great State of California.

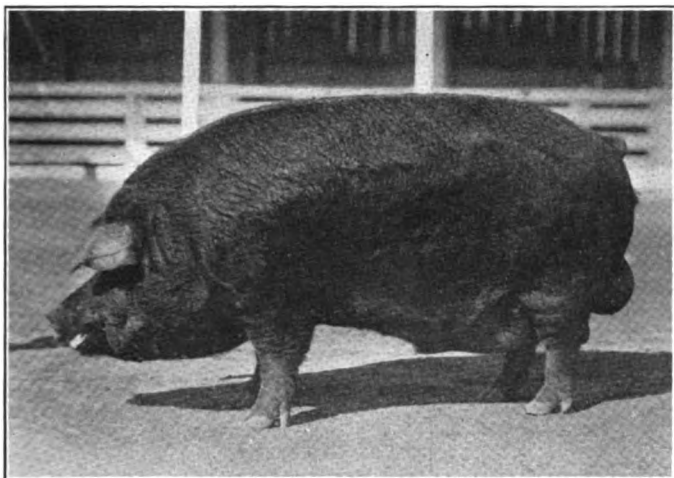
Thus it will be noticed that the possibilities for the Eastern agriculturist in the tilling of these great peat and tule lands through diversified farming is practically limitless. Millions of dollars are flowing into the delta country for reclamation projects.

Farmers and investors who appreciate the magnificent opportunities of the delta—who want to buy or rent lands where splendid returns are sure, will find the ideal country in the delta sections.

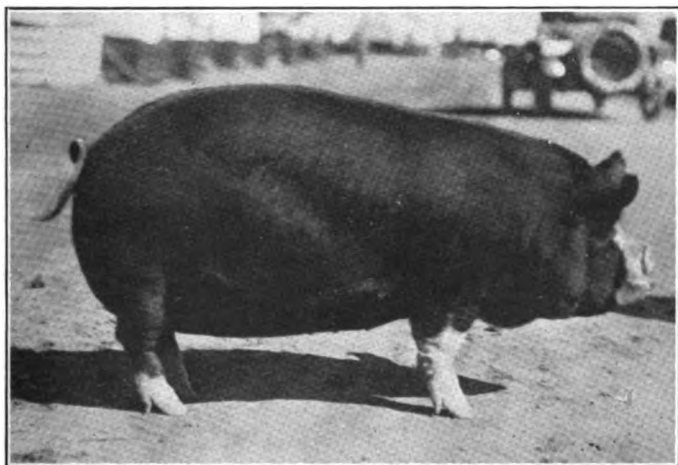
The story of the development and reclamation interests of the great swamp and tule lands of the San Joaquin and Sacramento rivers, is one of intense attraction and enjoyable to thousands interested in California.

It is because of the magnificent and wonderful opportunities of these sections, that we unhesitatingly invite capitalists, financiers, men of affairs, business men, merchants, homeseekers, colonists, dairymen, fruit growers, professional people, manufacturers, packers, and shippers to come and look the situation over.

You will find this a country where lands have a staple and increasing value, and where you have an opportunity to achieve things.



Crimson Monarch II. No. 179243. Grand Champion Duroc Jersey Boar. California State Fair, 1917. Exhibited by J. M. De Vilbiss, Patterson, California.



Mayfield Laurell XVI. No. 238173. Grand Champion Berkshire. California State Fair, 1917. Exhibited by Carruthers Farm, Mayfield and Live Oak, California.

GRAIN RAISING IN CALIFORNIA.

By JOHN M. PERRY, Director State Board of Agriculture. Chairman of Committee on Horticulture and Floriculture.

It is impossible in the limited space allotted to go into details regarding the different grains raised in California.

We have such a great variance in our climatic conditions and in altitude that one can find ideal conditions for almost any crop.

California has been, and still is, a very large producer of wheat and barley. The banner crop of wheat was raised during the season of 1896, when from three million eighty-eight thousand acres, there was harvested fifty-four million ninety-seven thousand bushels of wheat. Our requirements are approximately thirteen million nine hundred thousand bushels, so one can readily see on a crop like the above, how California had so much wheat to export in years past.

There are many varieties of wheat raised in California, but the principal varieties are, Australia, Oregon Blue Stem, Early Bart, in the Sacramento and the San Joaquin valleys, Turkey Red in the mountain sections, Sonora in the lower San Joaquin Valley, and different varieties of Club wheats.

There has been a gradual decrease in the acreage planted to wheat up until 1914, when the need for this grain by our Government, and the Allies in the war, became acute, since which time, by systematic agitation and education, the acreage of wheat has gradually increased and much land that was thought unfit to raise wheat has proven to be very prolific, and very remunerative to the farmer that has seeded wheat on these lands.

There is no doubt that many thousands of acres in the state of California that are laying fallow, or are being used for other crops, would produce excellent crops of wheat, and would not only serve a need that is most urgent but would be very remunerative.

A concrete example of that is furnished in San Joaquin County, where a farmer, on account of the season, decided he would not plant his land to wheat, but upon urgent solicitation, decided to plant one-half to wheat and the other half to barley. His harvest, which is at the present time about ready, will show a yield of approximately four hundred pounds more wheat to the acre than of barley. There is no doubt that next year he will plant his whole acreage to wheat.

All farmers should be encouraged to plant every available acre to wheat. One reason is because the Government wants the grain, and as a further inducement has guaranteed a price that the farmer

will receive for his crop. The price to be paid for wheat is guaranteed by the Government, and this is the only cereal on which the price has been guaranteed.

For a number of years past we have exported practically no wheat, but our exports of barley have increased rapidly. Much of the land that formerly was planted to wheat is now planted to barley, oats, corn, sorghums, alfalfa, etc. Our crops of barley harvested at the present time are practically double that of wheat.

The quality of barley raised in California is much desired. The shipping barley is plump and very bright as compared to the barleys raised in many sections. During past years large quantities of barley have been exported. Upon the opening of the Panama Canal much barley was shipped to Europe by this route, but during the past few years most of the shipping has been by rail from interior points to Galveston, Texas, or New Orleans, Louisiana, there to be transferred to vessels for European countries.

Quantities of barley have also been shipped to the Middle West, Chicago, and some of the shipments have gone by rail to New York and the Atlantic seaboard, being transferred there to vessels for Europe.

The raising of oats has also proven very profitable. Along the coast large acreages are planted to oats and cut for hay. Along the coast sections they also raise some black oats, but the principal variety of oats grown in California is the red oat, commonly known as Texas rust proof red oat.

The acreage of the coarser grains has also increased greatly. For a long time it was thought that it was impossible to raise corn in California, but in San Joaquin County alone, during the season of 1917, there was planted and harvested approximately thirteen thousand acres of field corn, the quality of which was equal, if not superior, to any corn raised in the United States. The principal varieties successfully grown were King Philip and white and yellow Dent.

During the season of 1918 there will be planted in San Joaquin County approximately twenty-five thousand acres of corn, which is nearly double the acreage previously planted. The yield has been exceptionally good, and with the extreme prices that have been paid, it has proven a very profitable crop.

With the advent of irrigation there has been a great increase in the number of acres planted to Egyptian corn, milo maize and other sorghum grains, which are very productive and profitable to the grower.

During late years there has been more attention paid by the farmer to the selection of seed and the method of harvesting his crops.

For a number of years the farmer would keep seed on his ranch from year to year, and by not cleaning it, allowed the seed to become foul, consequently his harvest was not up to the standard of former years. Realizing this and with the constant reminder from the dealers and the assistance from the farm bureaus and farm advisers, who have been continually advocating the use of better seed, the quality has improved. Furthermore, more care is being used in harvesting and cleaning the grain.

With the advent of the tractor, intelligent rotation of crops, careful preparation and drainage of land, deep plowing, better cultivation, and care in the selection of good seed, the quantity and quality of grain raised in California can be enormously increased.

COOPERATION OF THE COUNTY AUTHORITIES WITH THE STATE BOARD OF AGRICULTURE IN DEVELOPING AND EXTENDING THE RESOURCES OF THE STATE.

By E. J. DELOREY, Director State Board of Agriculture. Chairman of Committee on Speed Events and Track.

The great fundamental need at the present time, and for some time to come, is increased production. This of itself is sufficient reason for the county boards of supervisors to co-operate with the state fair, that there may be intelligent attention to soil, fertilizer, animals, proper moisture supply, seed selection and fruit culture. This is to be brought about by the county farm bureaus, who should encourage the farmers and their wives to vie with one another in friendly rivalry in showing the things they have made and grown, and by the working together of the county school teachers, who should urge the boys and girls to painstaking efforts in preparing the school exhibits for the fair.

During the fair there should be discussions and conferences, as farmers' meetings, boys and girls' rallies, and other group meetings, at which time various agencies interested in agricultural development, as United States county farm demonstration agents, specialists from the extension service of the Agricultural College and state departments, would address the gatherings on their own particular problems. County supervisors should also support a competent lecturer to dwell on the merits of their own particular county. Other periods might be devoted to demonstrations, packing of fruit, spraying operations, killing, dressing and packing poultry; germination tests, stock judging, butter making, cheese making, dress making and domestic science schools, etc.

The advantages in turn to the county would be the benefit to be derived from the collecting in one place the results of field inspection, the opportunity to initiate new movements for the improvement of agriculture, based on ideas obtained from county farm bureaus of various counties exhibited at the fair and a place of exhibit for contest work of the county youth, the embryo farmer of the future.

Assured income is a necessity if the fair is to do its work efficiently and expand. Therefore, public patronage must be attracted and held by being made sufficiently interesting, of an instructive and elevating character, which can only be accomplished by the hearty co-operation of the supervisors of the different counties. But these grants must be carefully guarded so as to stimulate and to insure that the funds are not handled in promoting worthless projects or visionary plans.

As a working factor in bringing about the spirit of association, the feeling of tolerance, the discretion of experience and information, the eagerness to work for a common good, the state fair plays a most important part in rural development life. It is a method of visual agricultural instruction of what constitutes good crops and desirable live stock.

DEVELOPMENT OF THE LIGHT HORSE—PLEASURE AND DRIVING.

By T. H. DUDLEY, Director State Board of Agriculture. Chairman Attractions and Advertising Committee.

Development of the light harness horse has been remarkable in the last twenty-five years; trotting and pacing records have been reduced from 2.14 to 1.59½ for trotting, and 1.55½ for pacing—which has been brought about from the new development and methods in training, shoeing, feeding and the bike sulky, and the early development of the colts and care in breeding. The colts commence being handled five or six months after they are foaled. It is a question whether we will have as rapid development in the next quarter of a century as we have had in the last. It seems to be almost impossible now to develop speed below the present limit, and I doubt very much if we will have the same ratio of development in the next few years.

The pleasure driving has practically been eliminated by the automobiles and there is very little demand for horses for pleasure purposes. I believe that all breeding and developing will now be for racing purposes, except saddle horses.

California, in years gone by, was one of the greatest producing states of the light harness horse which is now practically eliminated, as there is so little demand for this class of horses and very few breeders left in the state, and I consider this a very great loss to the state in every way. I believe the state should do something to encourage the interest for the breeding and development of the light harness horse. For years California horses held the record for yearlings, two-year-olds, three-year-olds, and aged horses; and that now has been taken away by Eastern-bred colts and horses. Practically all driving, trotting and horse shows are held in the East and Middle West and the breeding market is in that section. Large breeding farms are still being successfully maintained, especially in the Middle West and New York state.

The breeding and development of saddle horses in the United States reached the highest degree of success during the last century. The march of progress has eliminated the saddle horse as a utility animal for traveling, and even the changed conditions in the cattle sections have displaced the picturesque cowboy and his pony. The type of horse that was developed to meet the needs of that period possessed conformation and style not excelled in any other breed. He was trained to several gaits in order to ease the strain on his rider during a long journey, and had stamina and endurance as fundamental qualities. Advocates of his type urge that nowhere in the equine world can a better horse be found for Army purposes, or for the combination riding and driving or general purpose horse.

The use of the saddle horse for park and recreational work, and for the show ring, appeals to every horse lover, and brings a thrill that

cannot be equalled by any mechanical transportation device, unless it be the aeroplane, and there is every reason to believe that the high spirited, well trained gaited saddle horse will be in demand for park and show purposes for many years to come.

There are a number of devotees of this type of horse in California and the large attendance at all horse shows, where the grace, intelligence and physical beauty of the horse is shown to the best advantage, and holds the attention of thousands of spectators, proves that the bonds of loyalty and affection between man and horse are as strong as when the horse was indispensable to his master.

It seems too bad with the wonderful climate and advantages which California offers for breeding light harness horses, that we should have lost that industry, and I believe it would be to the interest of the state to try and further the development again of this industry. I also believe the breeding of saddle horses would pay and should be encouraged; although the automobile has driven that pleasure off the highways, and if the pleasure of riding or driving is again to be taken up the state and municipalities will have to build bridle paths and dirt roads alongside of the present concrete roads.

I can not see why California will not again take up breeding standard-bred horses and establish a market for our horses. There is no doubt if it could be arranged by having gentlemen's matinees organized in different parts of the state and an interest worked up, as is done in the East, it would then create a demand for trotting-bred horses and bring back the declining market and interest in horses. It would also furnish amusement and healthy sport for all, which would be a benefit to the state. The gentlemen's clubs throughout the East have been the means of keeping alive the trotting horse interest.



Raphaella Johanna Aaggie 3d. No. 185125. Property of Napa State Hospital.

RECORD.			
Seren days	Milk, pounds	Butter, pounds	
30 days	929.4	39.8	
100 days	3,795.6	139.4	
	11,329.4	----	

THE DAIRY INDUSTRY IN CALIFORNIA.

By RALPH W. BULL, Director State Board of Agriculture.

The importance of the dairy industry in California precludes adequate consideration in one article. In fact, it could well be accorded a volume, if the matter is to be taken up with any attention to detail. The growth of the cattle industry has kept pace with the development of the state, and the outstanding element of this growth has been the increased dairy development. The history of California shows three distinct periods of rural activity. In the days of the Spanish occupation, long-horned range cattle were the basis of the state's business and wealth. Following the American occupation came the "Days of Gold" which brought thousands of new people, and then agriculture naturally came into its own. Dry farming made California the grain-ary of the world for several decades, but progressive husbandry called for the best use to be made of the waters flowing from the snowbound reservoirs of the Sierras, and great irrigation systems took their place in the sphere of the state's activities. Thousands of acres of land under these systems were found best adapted to growing alfalfa and forage crops, and with these naturally came dairying as the means provided by Nature to make available for human consumption the products of the soil. Every recognized breed of dairy cattle may be found in the state and the improved blood lines have raised the standard of herds in every section, adding to the quantity, the quality and the value of the product, and increasing by millions of dollars the value of the herds.

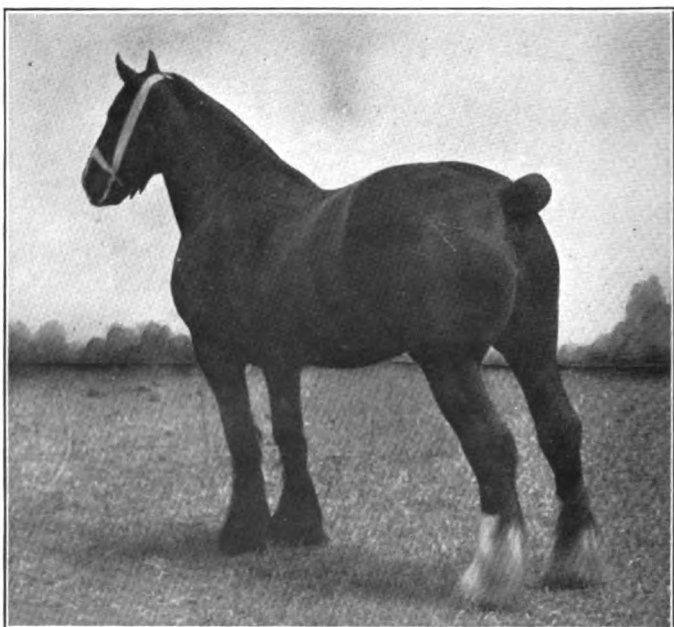
In this state the laws for the protection of public health practically divide the industry into three sections, the production of whole milk, of butter and cheese and of condensed milk. The question of location figures largely in the dairy industry, the large centres of population taking the milk produced in their immediate vicinity for domestic consumption. In other sections butter fat is the form in which the product is marketed. In a few sections condensers have been located and have secured a large proportion of the output, as these institutions have been able to offer the dairymen better returns than the butter makers. Cheese making is carried on in some few parts of the state, but has not received as much attention as its importance deserves.

The dairy industry has been fostered by the state whenever possible. The Dairy Bureau is an effective organization, doing much good. The state laws give wide authority to municipal health departments in the matter of inspecting dairy farms and their products and provide for the utmost care in all requirements for healthy cows kept under sanitary conditions. The University of California, through the State

Farm at Davis, has done much to raise the standard of the industry in this state, and to solve the problems of the dairy husbandryman.

The interest of the state in the production of pure and health giving dairy products has met with ready co-operation by the dairy industry, and the rigid regulations in force in every part of the state are cheerfully complied with by milk and butter producers, all of whom recognize the propriety and the necessity of safeguarding the public health as a primary requisite of the business. This attitude has in turn received complete approval from the public which is willing to pay good prices for good service, thus affording the dairyman all needed inducements to hold a high standard for his business.

There can be no question of the stability and success of this industry. California can support millions more people in comfort and happiness. Immigration to the state will increase indefinitely. The demand for dairy products will grow with the population. Our climate and soil will continue to yield golden returns to husbandry. Irrigation has solved to a large extent the problems of the state and a dry season has a reduced menace. Better stock and better methods are coming year by year. The demand for all kinds of food products at this time is world wide. The need of meat products is one of the acute problems of humanity. Profit will accrue in a large measure to those who can supply this demand, and today there is no one in any part of the world more advantageously situated to secure a full share of the good things of life than the capable dairy farmer of this state.



"Blackhawk Chessie." No. 15965. First and Champion Shire Mare. California State Fair, 1916-1917. Exhibited by Easton and Ward, Diablo, Cal.

THE DRAFT HORSE.

By CHAS. W. PAINE, Secretary Stallion Registration Board.

The future of the draft horse in California at the present time presents a serious question. Our records show that in 1912, there were registered 2,034 stallions and jacks, and in 1918 to the present time, July 1, there are only 822 licensed.

It is true that the greatest decrease in number has been among the mongrels, showing that we are raising better colts, but if we look into the matter seriously I am quite sure that the farmers and breeders are making a great mistake in letting this industry go by default.

Just when the death knell of the horse was first sounded is rather hard to discover, but there is a story to the effect that when young Stephenson first rigged up a steam engine on wheels with the avowed intention of making a self-propelled vehicle, an old Scotch breeder of Clydesdales visited the youthful inventor and threatened him bodily harm if he did not cease working on a machine that was calculated to supersede the horse.

Then came the cable cars, and then the electric trolley, and finally the automobile, the truck and the tractor. With the advent of each the prophets rang down the curtain on the horse.

Let us examine the facts of the case. In 1880 the United States had a population of 50,155,783, and a horse population of 10,357,488, or a ratio of less than one to five. In 1890, we had a population of 62,947,714 and 15,266,244 horses—a trifle over four to one. In 1900 there were 75,994,575 people and 16,952,191 horses—not quite four and one-half to one. In 1910 the population was placed at 91,972,266, and the number of horses at 19,220,338, a ratio of not quite five to one. The most recent figures give our population at considerably over 100,000,000, and on January 1 there were 21,126,000 horses on American farms.

A further investigation discloses the fact that in 1880 there were 4,088,907 farms on which the 10,357,488 horses were slightly over two and one-half horses per farm. In 1900, less than three horses were owned on the 5,737,372 farms. In 1910 we find a few more than three horses per farm. No figures showing the number of farms in the United States, January 1, 1917, are at hand, but it is safe to say that the ratio has been cut down since the beginning of the war, but to what extent we can not say. It does not seem possible that this ratio can be decreased to a very great extent or there would be few, if any, left. The above figures do not take into consideration the mules owned on farms; however, there has always been less than one mule per farm.

I must say that the tractor is in successful operation on many large farms and ranches, and the popularity and efficiency of the tractor is

bound to increase and will displace the horse where it is demonstrated to be more economical. But with the above figures in mind there does not seem to be any reason why draft horse breeders should become panic stricken.

Some will say that the figures I quote are all very true, but I am overlooking the fact that in the past the cities have been the outlet for surplus horses and it is a well known fact that the trucks are displacing many horses. During the past few years a great many firms sold their horses and purchased trucks, but a great many of the same firms will turn back to horses because of their demonstrated ability to handle a short haul more economically.

But there is a wider market to look to. Statistics for 1914 give the horse population of the world as 95,698,000. Russia, with 24,639,000, is the only country with more horses than the United States. Germany had 4,523,000, Austria-Hungary 4,374,000, France 3,231,000, the United Kingdom 2,233,000, Italy 956,000 and Canada 2,948,000.

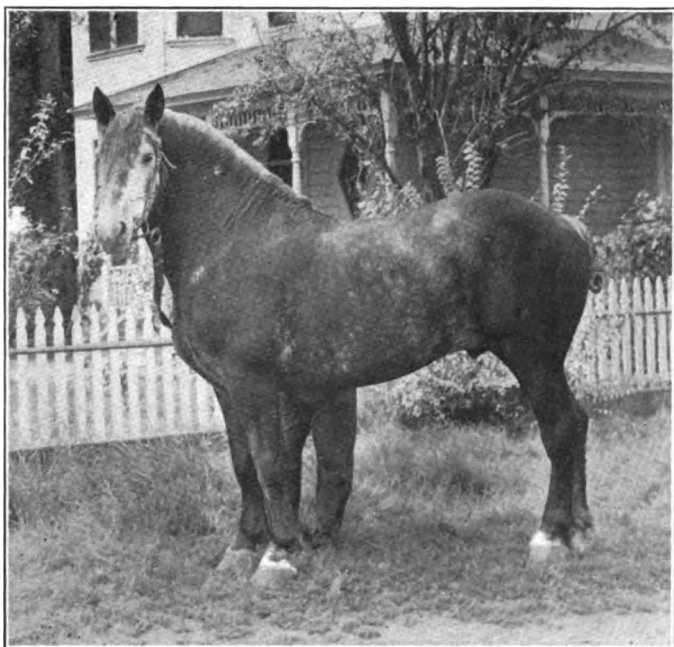
No figures are available to indicate the extent of the depletion of the horse stock of Germany, France, England, Russia, and Italy, but it goes without saying that the loss has been terrific and that the end of the war will find the warring nations facing a marked shortage of horsepower. The United States, Russia and the Argentine are the three sources of supply. The native horse of Russia is a small pony-sort of horse, likewise the native Argentine horse is small. The United States is therefore the only country in the world that is in a position to furnish Europe with horses approaching the type that is certain to be in demand when the rehabilitation of Europe begins.

It is said that it takes 35,000 horses and mules each month to replace the foreign losses and with our country at war it will require 11,000 horses and mules per month to keep our army of 2,000,000 supplied. In other words, after our army is in the field, 46,000 horses and mules will be taken from the country per month.

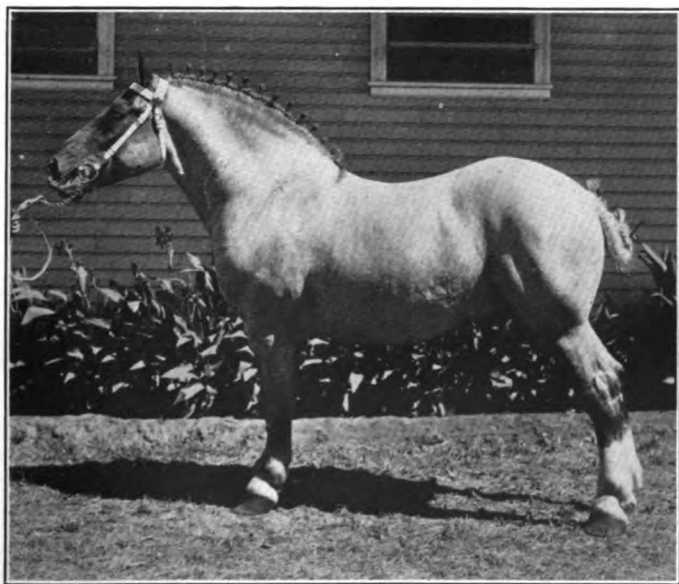
From any viewpoint, the future of the draft horse seems assured, and farmers and breeders will have lost a golden opportunity in not breeding every available mare to a good sound draft stallion at this time.

Twenty-five per cent of our soldier boys will want to go to the farms at the close of the war. Will we have the best kind of a horse ready for them when that time comes?

The draft horse is the finest type of horse, and the draft mare has a double capacity. She is self-reproducing motor power and contrary to the tractors, she is self-repairing to a very appreciable degree. Fuel power for the horse can be raised on the farm, while that of the tractor must be purchased on the outside.



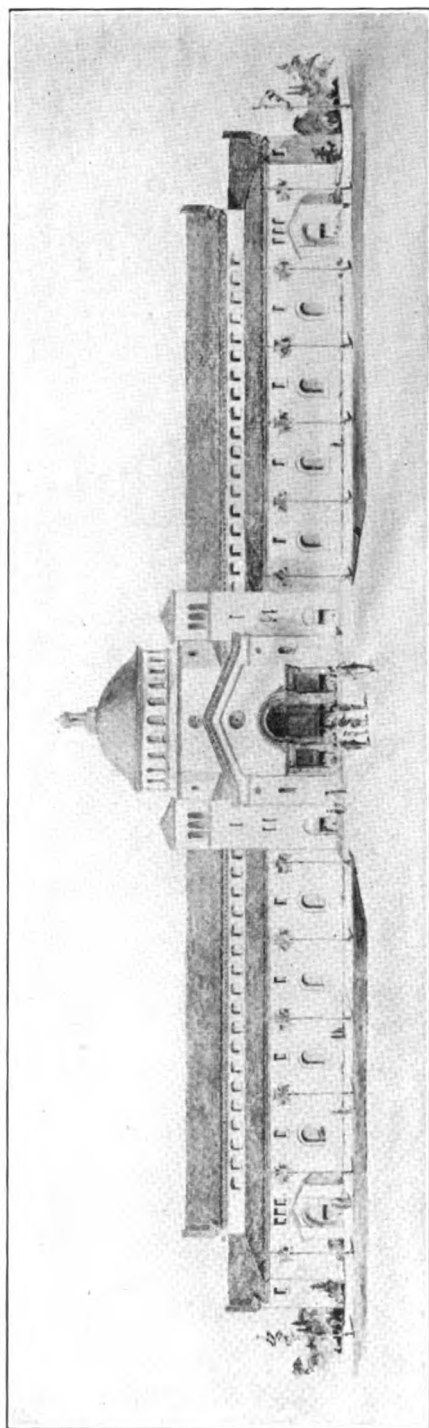
Ithos. No. 90754. Grand Champion Percheron Stallion. California State Fair, 1917. Owned by M. Bassett, Hanford, California.



Stevenot. No. 9260. Champion Belgian Stallion. California State Fair, 1917. Exhibited by Ruby & Bowers, Davis, Calif., and Portland, Ore.

In our state the buyers for our Government and the Allies have purchased all available horses and at the present time the price for geldings in Europe is quoted at between \$800 and \$1,000 per head. There is no reason why such prices will not prevail here in the very near future and it behooves, as I have said, every breeder to raise every colt possible.

The California Stallion Registration Board has endeavored in every way, this year, to encourage the breeders and I am sorry to say from our records our efforts have not been successful.



Front Elevation, New Agricultural and Horticultural Building, California State Fair Grounds, Sacramento.

STATISTICAL SUMMARY
OF THE
Production and Resources
OF
CALIFORNIA
BY
GEORGE ROBERTSON
Statistician.

PREFACE.

The law under which this report is prepared requires the annual collection, compilation, and distribution of statistics relating to the production and resources of the state. In the most important subjects the statistics are carried back for from ten to twenty-five years, but those who desire earlier information will find it in the first Statistical Reports, issued in 1911 and 1912, where the statistics go back to the year 1850, when the state was first organized.

To be of any real value, statistics must cover a number of years, in order that comparisons may be made, and the measure of progress, or falling off, be determined. Nothing can give a clearer or more precise idea of the development of a country than statistics, for figures speak more eloquently and convincingly than glowing literary descriptions, which are often exaggerated. In the business world today there are few things more valuable than reliable statistical data.

The various branches of agriculture and other subjects dealt with in this volume might be greatly extended, and much other information could be added, but the space available is limited by the amount of the appropriation of \$5,000 per annum.

The statistics regarding population, area of farm lands, and the number of fruit trees, are compiled from the Reports of the Bureau of the Census, which contain the only reliable figures obtained by actual count, and not by incomplete estimates, upon which no reliance can be placed. Few people realize the magnitude of such work, covering a state as large as California, but as an illustration, the pay alone of the enumerators employed by the Census Bureau in 1910 in this state was upwards of \$151,000.

The great difficulty in obtaining reliable information from county authorities is their tendency to exaggerate and overestimate their productions and its value.

The various sources from which the statistics in this report are compiled are the most trustworthy that can be obtained and the information has been brought down to the latest possible date. It contains a condensed summary of hundreds of federal and state reports, and other details obtained from a large number of correspondents in every industry from all parts of the state.

The great importance and value of statistics is now universally recognized, but it is a science which has been much neglected in California. The Australian and New Zealand colonies, with a much smaller population than California, devote from \$21,000 to \$50,000 each per annum

for this purpose, and even Japan and the Argentine Republic publish very complete statistical reports—and in English.

On September 3, 1916, a disastrous fire destroyed the main pavilion and offices in the State Fair Grounds, the valuable library and all documents being a total loss, which has added to the difficulties in compiling this report.

Acknowledgments and expressions of high appreciation are due to the United States Department of Agriculture, Bureau of the Census, Department of Commerce, United States Geological Survey, Commissioner of Fisheries, Commissioner of Indian Affairs, General Land Office, National Conservation Commission, the United States Reclamation Service, the Commissioner of Internal Revenue, the Comptroller of the Currency, the District Forester, Frank Adams, irrigation manager, University of California, E. L. Adams, United States Biggs Cereal Field Station, Butte County, and Prof. George H. Willson of the United States Weather Bureau of San Francisco.

Among the state departments, valuable assistance has been received from the State Controller's Department, the State Water Commission, Department of Engineering, the Railroad Commission of California, Mr. Fletcher Hamilton, State Mineralogist, the State Fish and Game Commission, the Surveyor General, State Board of Forestry, the County Horticultural Commissioners, Insurance Commissioner, Superintendent of Banks, Motor Vehicle Department, State Dairy Bureau, and many others.

GEORGE ROBERTSON,
Statistician.

Sacramento, California, July 1, 1918.

TABLE OF CONTENTS.

PART I.

PAGE

AREA, FARMS AND FARM LANDS. Vacant Public Lands; Homesteads; Indian Reservations; School Lands; Homesteads; Dry Farming; Vacant Public Lands; Number and Value of Farms; Size of Farms; Improved and Unimproved Farm Land; Mortgage Debt on Farms; Irrigation on Farms...	1
--	---

PART II.

POPULATION OF CALIFORNIA. Population 1850-1916; Indians of California; Density of Population; Population of Municipalities of 8,000 and Upwards; Cities of 2,500 to 6,000; Urban and Rural Population; Blind Population; Mortality Statistics; Marriages, Births and Deaths 1915-1917; Estimated Population of Cities and Towns, 1915; Population by Counties, 1850-1910; White and Colored Population; Foreign-born Population; Japanese Farmers, 1912; Color and Nativity of Farmers...	20
--	----

PART III.

DOMESTIC ANIMALS. Cattle, Horses, Mules, Asses, Swine, Sheep and Goats; Number and Value of Farm Animals 1875-1916; Imports and Exports of Farm Animals; Horses and Mules by Counties; Cattle, Sheep and Lambs by Counties; Production of Wool by Counties; Goats and Goats Hair; Summary of Domestic Animals by Counties.....	38
---	----

PART IV.

POULTRY, DAIRY PRODUCTS, BEES AND HONEY. Poultry Varieties: Turkeys, Ducks, Geese, Guinea Fowls; Ostriches; Eggs, Cheese and Butter; Bees, Honey and Wax; Butter and Cheese by Counties in 1910; Production, 1850-1910; Condensed Milk, 1906-1917; Value of Dairy Products, 1916-1917; Production of Honey, 1902-1917; Bees, Beeswax and Honey by Counties, 1910; Imports and Exports of Honey and Beeswax, 1900-1917.....	61
---	----

PART V.

FARM CROPS. Farm Crops, 1910-1917: Cereals: Barley, Buckwheat, Corn, Oats, Rye, Wheat; Potatoes; Broom Corn; Hay; Sugar Beets; Cotton; Rice, and Hops; Farm Crops for Twenty-five Years; Value of All Crops; Farm Crops by Counties.....	77
---	----

PART VI.

VEGETABLES AND NURSERY PRODUCTS. Tomatoes and Celery; Onions and Garlic; Asparagus, Artichokes, Lettuce, Cucumbers, Cabbages and Brussels Sprouts; Rhubarb; Cantaloupes, Cassabas and Watermelons; Strawberries; Leading Vegetable Districts and Acreage; Vegetable Shipments in 1917; Canned Vegetables; Mustard Seed and Licorice; Ginseng; Flowers, Nursery Products and Seeds; Cork, Tan Bark, and Tanning Extract.....	119
--	-----

TABLE OF CONTENTS.

		PAGE
Poultry and Dairy Products, Bees and Honey.		
TABLE	XXI. Poultry and Eggs by Counties in 1910.....	66
	XXII. Butter and Cheese by Counties (Census Bureau) 1910.....	69
	XXIII. Butter and Cheese by Counties (State Dairy Bureau) 1915-1916.....	70
	XXIV. Bees, Beeswax, and Honey by Counties in 1910.....	76
FARM CROPS.		
Cereals, Hay and Forage.		
TABLE	XXV. Acreage of Certain Farm Crops in 1917.....	83
	XXVI. Value of All Crops by Counties in 1910.....	110
	XXVII. Barley, Corn, and Oats by Counties in 1910.....	112
	XXVIII. Rye, Wheat, Kaffir Corn and Milo Maize by Counties in 1910.....	113
	XXIX. Potatoes and Sweet Potatoes by Counties in 1900 and 1910.....	115
	XXX. Hay and Forage by Counties in 1910.....	114
	XXXI. Dry Edible Beans and Peas by Counties in 1910.....	116
	XXXII. All Other Vegetables by Counties in 1910.....	117
	XXXIII. Sugar Beets by Counties in 1900 and 1910.....	118
HORTICULTURE.		
ORCHARDS AND VINEYARDS.		
Number of Trees and Production.		
TABLE	XXXIV. Acreage of the Principal Fruits in 48 Counties in 1917.....	163-165
	XXXV. Apples, Apricots and Cherries by Counties, 1910.....	193
	XXXV. (Continued). Peaches, Nectarines, and Pears by Counties in 1910.....	194
	XXXV. (Continued). Plums and Prunes, Total Number of Orchard Trees, and Number of Bushels.....	195
Tropical Fruits, Grapes and Nuts.		
TABLE	XXXVI. Figs, Olives, and Lemons by Counties.....	196
	XXXVI. (Continued). Oranges and Pomeles by Counties, and Total Number of Tropical Fruit Trees.....	197
Grapes and Nuts by Counties.		
TABLE	XXXVII. Grape Vines, Almonds, Pecans, and Walnuts by Counties.....	198
Small Fruits by Counties.		
TABLE	XXXVIII. Strawberries, Blackberries, and Dewberries by Counties.....	200
IRRIGATION.		
TABLE	XXXIX. Irrigated Farms—Acreage and Cost.....	232
	XL. Irrigated Farms—Main Ditches, Laterals and Wells.....	233
PUBLIC ROADS AND AUTOMOBILES.		
TABLE	XLI. Miles of Public Roads in 1914.....	242
	XLII. Number of Automobiles and Motorcycles by Counties in 1917.....	244
	XLIII. Number of Automobiles by Counties, 1914-1917.....	245
	XLIV. Receipts from Automobiles and Expenditure by Counties in 1917.....	246
MINERALS.		
TABLE	XLV. Production of Minerals by Counties, 1915-1916.....	302
	XLVI. Value of Minerals by Counties, 1915-1916, and Number of Mineral Springs.....	303

PART XIV.

PAGE

CALIFORNIA FISHERIES IN 1909 AND 1915-1917. California Fisheries: 1908-1909; Persons, Vessels, and Equipment Engaged, 1915; Quantity and Value of Salmon; Salmon Rivers; Salmon Catch by Counties; Monterey Sardines; Codfish Catch; Pack of Tuna Fish; Abalone; Kelp Harvest, 1917; California Oysters; Catch of Fish in 1917; Canned Fish in 1915; Canned and Cured Fish.....	305
CALIFORNIA GAME. Ducks, Geese, Quail, Doves and Pigeons; Deer, Bears, Mountain Lions	318

PART XV.

FINANCE AND TAXATION. Tariff Acts, 1789-1913; Imports and Exports of Gold and Silver, 1890-1917; Foreign Trade and California Ports, 1890-1917; Total Assessed Value by Counties, 1910-1917; Assessed Value of All Property, 1850-1917; California Banks in 1917; Insurance: Life, Fire, and Marine; Steam Railroads; Electric Railroads.....	323
--	-----

APPENDICES.

APPENDIX A. California State Board of Agriculture and Stallion Registration Board	365
California State Fairs, 1854-1918.....	366
State Boards of Agriculture.....	367
Agricultural Experiment Stations.....	368

COUNTY TABLES.

Land and Farms.

TABLE	I. Vacant Public Land.....	9
	II. Number and Size of Farms by Counties.....	16-17
	III. Improved and Unimproved Land by Counties	18
	IV. Mortgage Debt on Farms by Counties.....	19

Population.

TABLE	V. Marriages, Births and Deaths by Counties, 1915-1917..	25
	VI. Population of Incorporated Cities and Towns in 1915....	27-28
	VII. Population by Counties, 1850-1910.....	29
	VIII. White and Colored Population by Counties in 1900....	30
	IX. White and Colored Population by Counties in 1910.....	31
	X. Foreign-born Population in California, 1860-1900.....	32
	XI. Foreign-born White Population in California in 1910....	33
	XII. Japanese Farmers by Counties in 1912.....	34
	XIII. Color and Nativity of Farmers in 1910.....	35
	XIV. Number of Schools, Pupils and Teachers by Counties in 1917.....	36

Domestic Animals in 1910.

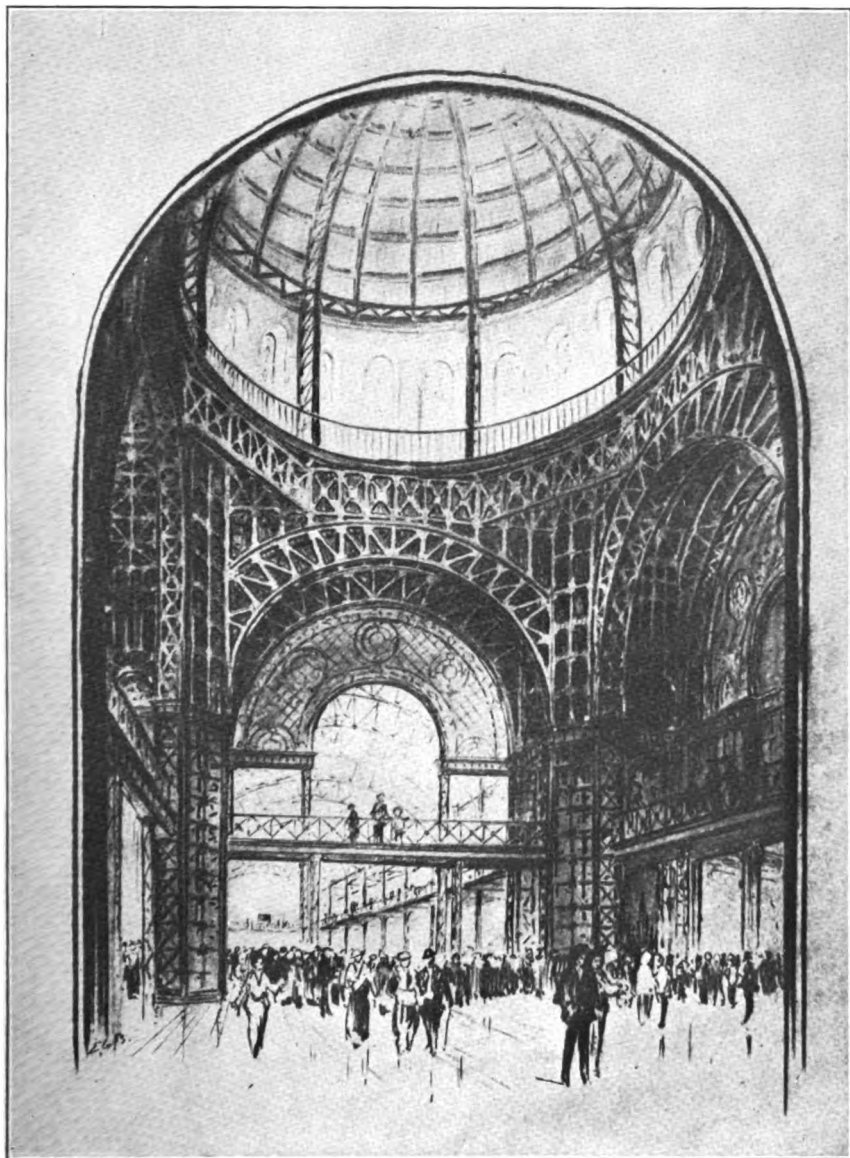
E	XV. Horses, Colts, and Mules by Counties.....	53
	XVI. Cattle by Counties.....	54
	XVII. Sheep, Lambs, and Swine by Counties.....	55
	XVIII. Wool Produced by Counties, 1860-1900.....	56
	XIX. Goats, Wool, Mohair and Goat Hair, 1900-1910.....	57
	XX. Domestic Animals on Farms and Ranges, and Enclosures, by Counties in 1910.....	58-59

NOTES REGARDING CHANGES IN BOUNDARIES OF
COUNTIES AND INCORPORATED PLACES.

- Colusa*—Part taken to form Glenn in 1891.
Del Norte—Part annexed to Siskiyou between 1880 and 1890.
Fresno—Part taken to form Madera in 1893, and part annexed to Kings in 1909.
Glenn—Organized from part of Colusa in 1891.
Humboldt—Part of Klamath annexed in 1874.
Imperial—Organized from part of San Diego in 1907.
Kings—Organized from part of Tulare in 1893, and part of Fresno annexed in 1909.
Lake—Part annexed to Napa in 1872.
Los Angeles—Part taken to form Orange in 1889.
Madera—Organized from part of Fresno in 1893.
Modoc—Organized from part of Siskiyou in 1874.
Monterey—Part taken to form San Benito in 1874.
Napa—Part of Lake annexed in 1872.
Orange—Organized from part of Los Angeles in 1889.
Riverside—Organized from parts of San Bernardino and San Diego in 1893.
San Benito—Organized from part of Monterey in 1874.
San Bernardino—Part taken to form part of Riverside in 1893.
San Diego—Part taken to form part of Riverside in 1893, part taken to form Imperial in 1907.
Santa Barbara—Part taken to form Ventura in 1871.
Siskiyou—Part taken to form Modoc in 1874; part of Klamath annexed in 1874, and part of Del Norte annexed between 1880 and 1890.
Tulare—Part taken to form Kings in 1893.
Ventura—Organized from part of Santa Barbara in 1871.
-

INCORPORATED PLACES.

- Bakersfield*—Part of township 3 (Kern City) annexed in 1909.
Berkeley—Part of Oakland township annexed in 1906 and 1908.
Fresno—Part of township 3 annexed in 1910.
Los Angeles—Parts of Ballona, Burbank, Cahuenga, and San Antonio townships annexed between 1890 and 1900; part of Ballona township annexed in 1906; part of Wilmington township (including San Pedro City) annexed in 1909, and parts of Burbank and Cahuenga townships annexed in 1910.
Oakland—Parts of Brooklyn and Oakland townships annexed in 1909.
Ontario—Parts of Ontario township annexed in 1901.
Pasadena—Parts of Pasadena township annexed in 1904 and 1906.
San Leandro—Part of Brooklyn township annexed in 1909.



Inside View of Steel Dome, New Agricultural and Horticultural Building, California State Fair Grounds, Sacramento.

COUNTIES AND COUNTY SEATS, ACREAGE AND POPULATION.

Counties	County seat	Elevation, county seats	Estimated population of county seats, 1917	Approximate county land area, acreage	Number of acres of land assessed, 1917
Alameda	Oakland	36	220,000	468,480	441,753
Alpine	Markleeville	*	200	496,640	39,318
Amador	Jackson	1,975	12,035	384,640	309,104
Butte	Oroville	250	4,654	1,102,080	899,046
Calaveras	San Andreas	*	700	657,280	521,205
Colusa	Colusa	60	2,500	729,600	612,736
Contra Costa	Martinez	125	3,750	456,960	459,412
Del Norte	Crescent City	50	1,114	655,360	219,423
El Dorado	Placerville	1,875	1,914	1,121,920	668,879
Fresno	Fresno	293	55,000	3,808,000	2,251,520
Glenn	Willows	136	3,200	805,760	630,001
Humboldt	Eureka	64	18,000	2,325,760	1,651,382
Imperial	El Centro	-2	6,000	2,616,960	1,033,269
Inyo	Independence	3,907	1,701	6,412,160	274,619
Kern	Bakersfield	404	19,500	5,121,920	3,376,815
Kings	Hanford	249	6,200	741,760	830,378
Lake	Lakeport	*	800	817,920	366,197
Lassen	Susanville	4,175	1,800	2,399,840	836,380
Los Angeles	Los Angeles	293	590,000	2,602,880	1,107,791
Madera	Madera	272	3,800	1,351,680	774,604
Marin	San Rafael	*	6,350	338,560	306,720
Mariposa	Mariposa	2,018	1,654	936,320	342,129
Mendocino	Ukiah	620	3,000	2,209,920	1,668,359
Merced	Merced	173	4,000	1,276,800	1,171,358
Modoc	Alturas	4,460	2,000	2,446,720	693,173
Mono	Bridgeport	6,500	1,312	1,939,200	177,548
Monterey	Salinas	40	6,000	2,131,200	1,448,596
Napa	Napa	20	7,000	501,120	411,128
Nevada	Nevada City	2,580	3,000	623,360	476,154
Orange	Santa Ana	137	16,000	508,800	446,257
Placer	Auburn	1,360	2,500	892,800	615,617
Plumas	Quincy	3,400	1,000	1,660,160	561,391
Riverside	Riverside	851	18,000	4,633,600	1,677,324
Sacramento	Sacramento	71	65,000	629,120	596,456
San Benito	Hollister	284	12,308	890,880	593,432
San Bernardino	San Bernardino	1,054	20,000	12,900,480	2,027,459
San Diego	San Diego	93	90,000	2,701,440	1,179,783
San Francisco	San Francisco	207	550,000	27,520	29,760
San Joaquin	Stockton	24	48,000	926,720	865,842
San Luis Obispo	San Luis Obispo	201	6,000	2,133,760	1,621,933
San Mateo	Redwood City	8	3,700	286,080	305,972
Santa Barbara	Santa Barbara	130	22,000	1,753,600	1,038,201
Santa Clara	San Jose	95	40,000	849,920	742,672
Santa Cruz	Santa Cruz	20	12,000	278,400	260,439
Shasta	Redding	552	3,500	2,469,120	1,479,290
Sierra	Downville	3,150	350	590,720	333,908
Siskiyou	Yreka	2,635	2,500	4,003,840	1,891,070
Solano	Fairfield	12	750	526,080	516,006
Sonoma	Santa Rosa	181	17,817	1,009,280	907,095
Stanislaus	Modesto	90	9,000	928,000	870,900
Sutter	Yuba City	57	1,600	389,120	374,513
Tehama	Red Bluff	307	4,000	1,851,520	1,300,800
Trinity	Weaverville	2,046	500	2,026,240	587,479
Tulare	Visalia	334	4,550	3,107,840	1,457,828
Tuolumne	Sonora	1,825	3,200	1,401,600	453,422
Ventura	Ventura	43	4,000	1,201,920	591,656
Yolo	Woodland	58	5,000	648,960	598,135
Yuba	Marysville	67	7,000	408,960	398,784
Totals				99,617,280	48,322,621

*Not ascertained. †Census 1910, later figures not available.

THE STATE OF CALIFORNIA.

(Date of organization as a Territory, March 1, 1847; as a State, September 9, 1850.)

PART I.

AREA, FARMS AND FARM LANDS.

Vacant Public Lands; Homesteads; Indian Reservations; School Lands; Homesteads; Dry Farming; Vacant Public Lands; Number and Value of Farms; Size of Farms; Improved and Unimproved Farm Land; Mortgage Debt on Farms; Irrigation on Farms.

The state of California is about 780 miles in length; its breadth varies from 150 to 350 miles and its total area is 158,297 square miles, of which 2,645 are water surface. The coast line is more than 1,000 miles long. In size it ranks second among the states of the Union, Texas being the only one to exceed it. It is almost as large in total area of land and water as the following seven Eastern states combined:

State	Square miles
New York	49,204
Ohio	41,040
Maine	33,040
Vermont	9,564
New Hampshire	9,341
Massachusetts	8,266
New Jersey	8,224
Total	158,679
California	158,297

California has the highest and lowest land of the United States, the greatest variety of temperature and rainfall, and of products of the soil. The spread of irrigation and of intensive cultivation, and the increase of small farms during the last twenty years, have made California what it is today.

Agriculture had its beginning in wheat raising on great ranches, from fifty to several hundred thousand acres in extent; then deciduous orchard fruits and semitropical citrus fruits, successively.

Both the Spanish and Mexican governments made large grants of land to encourage settlement. These were used as cattle ranches exclusively, up to the time of the American occupation, and the exports consisted entirely of hides and tallow. These grants covered the valleys of the state to a large extent, and later were recognized and patented by the United States Government. About 500 of these claims, covering nearly nine million acres, were found to be valid.

Of the fifty-eight counties into which the state is now divided, the first twenty-seven were organized on February 18, 1850; ten years later the number had increased to forty-two. In 1872, Ventura became the fiftieth county, and Imperial, the latest addition, was formed in 1907.

The land area of the state is about 99,898,880 acres, a great part of which is rough, mountainous country and desert, roughly classified as follows:

Land surface		Water surface		Total	
Square miles	Acres	Square miles	Acres	Square miles	Acres
155,652	99,898,880	2,645	1,692,800	158,297	101,310,080

Approximately one-half of the land surface of the state is under the control of the federal government, including 19,532,731 acres in the national forests, on January 1, 1916. The areas designated as "National Forests" were formerly called "Forest Reserves," but the title was changed by act of congress of March 4, 1907. Up to June 30, 1917, the amount of swamp land patented to the state was 2,115,416 acres.

Indian Reservations.

The Indians were prominent in early California history, but their progress towards their present insignificance began far back in the Spanish period. It proceeded much more rapidly after the restraining influence of the Missions was removed, leaving them free to revert to savagery; and the downward progress of the race was fearfully accelerated during the mining period, when they were ambushed, deprived, and in large numbers killed. There have been no Indian wars in California's annals, but many butcheries.

The natives have declined exceedingly in number since 1834. They have always been mild-tempered, low, and unintelligent, and are today a poor and miserable race. They are called "Digger Indians," indiscriminately, although divided by a multiplicity of tongues.

The Indians of California.

The Indians of California are of at least fourteen different linguistic stocks. The government, in dealing with the California tribes, did not follow the policy pursued with the wild Indians of the plains, and no treaties were made with them and no remuneration paid for lands acquired by white settlers. Large numbers are located on twenty-six reservations, namely: Hoopa Valley, Round Valley, Tule River, Yuma, and twenty-two Mission reservations.

Most of the Mission Indians are located on small reservations scattered over Riverside and San Diego counties. Among them are found representatives of a number of different tribes.

Round Valley reservation, embracing an area of 59 square miles, is situated in Mendocino County, and the remnants of nine small tribes are located here, who might well be classed as civilized. Tule River reservation in Tulare County contains 76 square miles, and contains the

remainder of the once powerful Tule tribe. The Yuma reservation contains an area of 71½ square miles, the Indians living on this section being the most primitive of the California tribes in manners and customs.

The principal industries other than farming and stock raising engaged in by Indians are basket making, blanket weaving, bead work, pottery and wood cutting. The value of crops raised in 1917 was \$256,114, stock sold \$37,730, native industries—weaving, basketry \$34,990, and wages earned \$338,955. The total value of individual and tribal property including lands and timber in 1917 amounted to \$4,956,525 individual, and \$4,077,267 tribal property.

The largest allotments are 42,106 acres in the Round Valley reservation; 29,091, in the Hoopa Valley reservation, and 8,010 acres in the Fort Yuma reservation.

Indians are located in 55 of the 58 counties of the state. The allotments number 2,593, the acreage amounting to 82,172 acres allotted, 434,866 unallotted, or a total of 517,038 acres.

Indian Reservations, Years Ending June 30, 1890-1917.
Area—Unallotted.

	Acres	Square miles		Acres	Square miles
1890	494,045	772	1915	430,136	672
1900	406,396	635	1917	434,866	679

Indian Population, Years Ending June 30, 1890-1917.

1890	12,108
1900	11,431
1915	15,084
1917	15,362

Public and Indian Lands Originally Entered, Years Ending June 30, 1903-1917.
(In acres.)

1903	957,507	1911	1,064,644
1904	986,253	1912	872,301
1905	1,032,758	1913	937,230
1906	809,811	1914	878,874
1907	579,294	1915	1,001,663
1908	766,932	1916	640,361
1909	1,290,579	1917	754,964
1910	1,214,348		

Original Homestead Entries, Years Ending June 30, 1903-1917.
(In acres.)

1903	300,968	1911	1,062,005
1904	266,317	1912	871,381
1905	262,973	1913	381,129
1906	211,587	1914	393,702
1907	173,438	1915	498,477
1908	235,816	1916	496,743
1909	216,699	1917	592,103
1910	278,700		

CALIFORNIA STATE BOARD OF AGRICULTURE.

**Lands Certified or Patented on Account of Railroad Grants, Years Ending
June 30, 1903-1917.
(In acres.)**

1903.....	76,069	1911.....	442,879
1904.....	347,258	1912.....	23,995
1905.....	426,951	1913.....	-----
1906.....	318,986	1914.....	1,040
1907.....	100,971	1915.....	313,741
1908.....	3,897	1916.....	81,633
1909.....	589,000	1917.....	38,641
1910.....	364,084		

Land Areas Patented, Years Ending June 30, 1913-1917.

Year	Acres
1914.....	202,362
1915.....	641,314
1916.....	356,676
1917.....	311,528

**Vacant Public Lands—Areas Unappropriated and Unreserved, Years Ending
June 30, 1900-1917.
(In acres.)**

Year	Surveyed	Unsurveyed	Total
1900.....	34,423,923	8,043,589	42,467,512
1912.....	17,671,839	5,343,459	23,015,338
1913.....	15,633,304	5,220,333	20,853,637
1914.....	16,183,344	4,719,408	20,902,752
1915.....	16,244,018	4,391,905	20,635,923
1916.....	15,777,934	4,248,665	20,025,999
1917.....	15,103,078	4,402,139	19,505,217

National Parks and National Monuments.

There are four national parks and six national monuments in California. The former were created by acts of congress and the latter by proclamations of the President. The name of each, with the date of creation and present area, is shown by the following table:

Name	Date created	Area, acres
Yosemite National Park*.....	Oct. 1, 1890	719,622.40
Sequoia National Park†.....	Sept. 25, 1890	161,597.00
General Grant National Park.....	Oct. 1, 1890	2,536.00
Lassen Volcanic National Park.....	Aug. 9, 1916	79,220.00
Devil Postpile National Monument.....	July 6, 1911	80.00
Lassen Peak National Monument‡.....	May 6, 1907	1,280.00
Cinder Cone National Monument.....	May 6, 1907	5,120.00
Muir Woods National Monument.....	Jan. 9, 1908	295.00
Pinnacles National Monument.....	Jan. 16, 1908	2,080.00
Cabrillo National Monument.....	Oct. 14, 1913	21,910 sq. ft.

*Boundary changed by Congress in 1905 and again in 1906.

†Boundary changed by Congress October 1, 1890.

‡Within Lassen Volcanic National Park.

SALE OF SCHOOL LANDS.*

Certain school lands if suitable for cultivation is subject to sale to actual settlers thereon, pursuant to the provisions of chapter 395, Statutes of California, 1915. Large areas of land are also available to lease.

Forms for application to lease state lands from the state of California can be obtained from the State Surveyor General, Sacramento, California. A filing fee of \$5 must accompany the application to lease state lands, together with a letter from the applicant stating the maximum amount per acre that the applicant is willing to pay as the annual rental for the land desired to be leased, which letter from the applicant will be submitted to the State Board of Control when the Surveyor General determines the annual rental per acre of the land and submits same to the State Board of Control for approval, in accordance with the provisions of section 2 of chapter 493, statutes of California, 1917.

There are 811,810.64 acres of vacant school land situated in 48 counties of this state which are subject to lease by any person, firm or corporation from the state of California, pursuant to the provisions of chapter 493, statutes of California, 1917.

Anyone desiring to lease any of these lands can obtain free, a pamphlet containing a copy of the law governing the leasing of said lands and a list of the different tracts of state land subject to lease in the county in which he is interested together with a form for application to lease, on application to Surveyor General.

All money derived from the leasing of these lands goes directly to the support of the public schools.

The state has sold all of its swamp and overflowed land except a few isolated tracts which can be found only by an extensive search of the records of the State Land Office.

List Showing Area of Vacant School Lands for Lease, December, 1917.

Counties	Acres	Counties	Acres
Alpine -----	1,675.16	Placer -----	2,035.03
Amador -----	640.00	Plumas -----	6,779.94
Butte -----	1,906.89	Riverside -----	33,055.84
Calaveras -----	1,040.00	San Benito -----	2,602.53
Colusa -----	2,000.00	San Diego -----	35,291.09
Del Norte -----	4,068.32	San Luis Obispo -----	5,196.76
El Dorado -----	3,400.00	Santa Barbara -----	819.94
Fresno -----	6,900.61	San Bernardino -----	252,685.67
Glenn -----	2,442.87	Santa Clara -----	1,777.21
Humboldt -----	3,496.11	Santa Cruz -----	75.99
Imperial -----	27,970.23	Shasta -----	18,813.67
Inyo -----	147,685.98	Sierra -----	2,368.20
Kern -----	16,260.78	Siskiyou -----	34,407.39
Lake -----	11,750.52	Solano -----	323.96
Lassen -----	53,287.96	Sonoma -----	510.04
Los Angeles -----	1,388.25	Stanislaus -----	1,280.00
Madera -----	1,720.00	Tehama -----	10,640.00
Mariposa -----	2,201.46	Trinity -----	12,522.86
Mendocino -----	10,555.87	Tulare -----	2,590.15
Merced -----	20.60	Tuolumne -----	2,195.79
Modoc -----	38,660.71	Ventura -----	114.76
Mono -----	34,038.73	Yolo -----	440.00
Monterey -----	3,052.00	Yuba -----	1,145.69
Napa -----	1,463.70		
Nevada -----	1,512.28	Total -----	811,810.64

*For number of schools, teachers and pupils by counties, see page 37.

There are no vacant school lands in the following ten counties: Alameda, Contra Costa, Kings, Marin, Orange, Sacramento, San Francisco, San Joaquin, San Mateo, Sutter.

RAILROAD LAND.

The following acreage in various counties belonging to the Southern Pacific and Central Pacific railways is also for sale:

Counties	Acres	Counties	Acres
Butte -----	9,876.08	Fresno -----	2,860.00
Yuba -----	6,621.46	Tulare -----	4,129.79
Tehama -----	13,780.97	Kings -----	86.20
Shasta -----	9,723.48	Kern -----	135,197.33
Siskiyou -----	51,681.36	Los Angeles -----	46,720.59
Nevada -----	480.00	San Bernardino -----	134,171.24
El Dorado -----	1,174.73	Orange -----	324.90
Sierra -----	401.27	Riverside -----	118,452.94
Monterey -----	962.57	Imperial -----	1,832.45
Monterey and San Benito -----	600.20		
Stanislaus -----	5,651.47	Total -----	544,729.03

VACANT PUBLIC LANDS.

Practically all the vacant public land which is easily accessible has been already taken up, the areas now remaining being situated at a considerable distance from towns or villages, or in remote mountain valleys.

Before entry, personal inspection of the lands should be made to ascertain if they are suitable, and when the applicant is satisfied on this point, entry can be made at the local land office. Information regarding vacant land in any district can be obtained on application to the register and receiver of the proper local land office, who will give full information regarding vacant land and the steps necessary to be taken in making entry. All vacant unappropriated public lands, nonmineral and nonsaline in character, are subject to entry under the homestead laws.

Homesteads.

Any person who desires to obtain a homestead must be a citizen of the United States or have declared his intention to become such, over the age of 21 years, and not the proprietor of more than 160 acres of land in the United States.

Six months from the date of filing is allowed to establish a bona fide residence on the homestead, which from that time to the date of the final proof must be the home of the applicant to the exclusion of a home elsewhere.

Under the new homestead law the entryman must, within six months after filing, establish actual residence on the land, build a habitable house and actually live on the land to make it a home for seven months out of each year for three years, and cultivate at least one-eighth of the land.

Residence can not be maintained by occasional visits to the land while the actual home is elsewhere. The homesteader must manifest entire

good faith in occupying the land as a permanent home to the exclusion of one elsewhere.

The settler must show that he has cultivated one-sixteenth of the area of the land, beginning with the second year from date of entry, and one-eighth of the area the following year and until proof is submitted. A mere breaking of the soil will not meet the terms of the law, but such breaking and stirring of the soil must be accompanied by planting or the sowing of seed and tillage for crops other than native grasses. If his proof is satisfactory, and the government, after investigation, finds that he has complied with the law in good faith, his entry will be clear-listed, and in due time he will receive a patent for the land.

The homesteader may, before three years, by paying the purchase price of the land, at the rate of \$1.25 per acre if it is situate outside the limits of a railroad grant, and at the rate of \$2.50 per acre if it is within the granted limits of a railroad, offer what is known as commutation proof, which must show at least fourteen months of actual and substantially continuous residence, with bona fide cultivation and improvement of the land, immediately prior to his application to make such proof.

The United States Land Office fees and commissions for filing on 160 acres are \$16.00, if the land is outside of the limits of a railroad grant; if inside the granted limits of a railroad they would amount to \$22.00. The fees and commissions are computed upon the acreage of the tract entered.

The final proof commissions on 160 acres would be \$6.00, if the land is outside a railroad grant, and \$12.00 if inside the limits of a grant. Added to this are fees ranging from \$2.00 to \$4.00 based upon the number of words of testimony in the proof. There are no other fees or commissions required of a homesteader by the government.

Those who commute their homesteads must pay the purchase price of the land in addition to the above fees, except the final proof commissions, which are not required on commuted homesteads.

The following summary, based on reports furnished by the district land offices, show, by land districts, and counties, the area of unappropriated and unreserved public lands, surveyed and unsurveyed, and a brief description of the character of the vacant lands. The General Land Office can furnish no more definite information as to the location and character of the vacant lands than is here given. Inquiries regarding the climate and soil in any given vicinity may be addressed to the Department of Agriculture.

A township diagram, showing only entered lands in any township, can be procured by sending \$1.00 to the register and receiver of the land office of that district. The diagram required should be specified by township and range number.

While the following figures may not be absolutely correct, owing to liability to error in a work of such magnitude and to the necessity of making estimates of unsurveyed lands, it is believed that they afford a close approximation to the actual areas. The statement is intended to inform correspondents and the general public as to whether there is much or little public land in the several land districts therein and in particular counties and localities.

In some counties only a few acres are reported as vacant, and in seven all the land has already been taken up. Neither the General Land Office nor the local land officers can furnish information as to the location of such tracts, but such information may be obtained from the records of the local land offices which, when not in official use, are open to inspection by prospective home seekers or their agents. There are a number of detailed regulations issued in 1917 regarding enlarged homesteads, stock-raising homesteads, soldiers' additional rights, military service by homesteaders, and leave of absence for the purpose of performing farm labor, copies of which can be obtained from the General Land Office, Washington.

Dry Farming.

The United States Government is not only interested in settling its irrigated lands, but also in developing all parts of its territory, and for this reason the various bureaus of the Department of Agriculture have been studying the soils of the West and also scouring the world to find crops suited for these regions. Dry farming is meeting with a certain amount of success in various parts of the country, and the combined efforts of all of these endeavors to make fertile and productive these lands will result in an era of unprecedented prosperity for the entire West.

A regulation has recently been issued increasing the area of a homestead from 160 to 320 acres on land having no water supply, in Los Angeles, Imperial, San Diego, and Riverside counties.

The total acreage of land unappropriated and unreserved on July 1, 1917, was 19,505,217 acres, or a decrease of 520,782 acres compared with the previous year.

TABLE I.

Statement Showing the Area of Land in California Unappropriated and Unreserved on July 1, 1917.

Land district and county	Area in acres			Character
	Surveyed	Un-surveyed	Total	
El Centro—				
Imperial	693,963	197,701	891,664	Rolling, level, desert.
Riverside	961,774	831,666	1,823,472	Mountainous, level, desert.
San Diego	346,443	62,060	408,523	Mountainous, rolling, desert.
Totals	2,082,200	1,091,479	3,123,679	
Eureka—				
Del Norte	716		716	Sea beach, mountainous.
Humboldt	61,430	17,464	81,894	Mountainous, farming, grazing.
Mendocino	6,370		6,370	Mountainous, grazing, timber.
Siskiyou	1,489		1,489	Farming, forest listings.
Trinity	28,060	2,560	30,610	Mountainous, grazing, timber, farming.
Totals	101,055	20,024	121,079	
Independence—				
Alpine	10,581		10,581	Mountainous, grazing, mineral.
Inyo	2,676,535	1,154,718	3,831,253	Mountainous, agricultural, desert.
Kern	598,092	96,041	696,133	Grazing, mineral, agricultural.
Mono	288,507	29,284	317,791	Mountainous, grazing, agricultural, mineral.
San Bernardino	2,068,616	1,284,445	3,348,061	Mountainous, mineral, arid, desert.
Totals	5,687,331	2,563,488	8,208,819	
Los Angeles—				
Kern	83,202	5,893	88,595	Arid, level desert, mountainous.
Los Angeles	500,100	8,770	508,870	Arid, level desert, mountainous.
Orange	19,723	1,624	21,350	Mountainous, hilly.
Riverside	197,250	45,509	242,849	Mountainous, rolling, level desert.
Santa Barbara	1,180		1,180	Mountainous, rolling.
San Bernardino	3,203,120	409,726	3,615,846	Mountainous, rolling, level desert.
San Diego	100,400	2,240	102,640	Mountainous, rolling.
Ventura	38,743	9,410	48,153	Mountainous, rolling.
Totals	4,096,721	482,762	4,579,483	
Sacramento—				
Alpine	17,600		17,600	Mountainous.
Alameda	11,910		11,910	Hilly, grazing, mineral.
Butte	21,101		21,101	Hilly, grazing, mineral.
Calaveras	51,152		51,152	Hilly, grazing, mineral.
Colusa	31,710	1,280	32,990	Hilly, grazing, mineral.
El Dorado	37,303		37,303	Hilly, grazing, mineral.
Fresno	3,893	2,560	5,953	Hilly, grazing, mineral.
Glenn	11,911		11,911	Hilly, grazing, mineral.
Lake	9,890		9,890	Mountainous.
Madera	3,819		3,819	Hilly, grazing, farming, mineral.
Mariposa	40,393		40,393	Hilly, grazing, farming, mineral.
Merced	4,496		4,496	Hilly, grazing, farming, mineral.
Modoc	506	6,080	6,583	Mountainous, grazing, timber.
Napa	14,200		14,200	Mountainous, grazing, timber.
Nevada	40,288		40,288	Mineral, hilly, grazing.
Placer	23,049		23,049	Mineral, hilly, grazing.
Stanislaus	7,717		7,717	Mineral, hilly, grazing.
Shasta	175,283	2,180	177,443	Farming, grazing, timber, mineral.
Siskiyou	132,411	88,111	170,522	Farming, grazing, timber, mineral.
Tuolumne	23,136	1,600	24,736	Mineral, grazing, timber.
Tehama	72,284	720	73,004	Hilly, grazing, mineral.
Trinity	27,380	4,900	32,340	Mountainous, grazing, timber, mineral.
Yolo	85,350		85,350	Hilly, grazing.
Yuba	25,457		25,457	Hilly, grazing, mineral.
Totals	823,702	57,471	884,173	

TABLE I—(Continued).

Statement Showing the Area of Land in California Unappropriated and Unreserved on July 1, 1917—Continued.

Land district and county	Area in acres			Character
	Surveyed	Un-surveyed	Total	
San Francisco—				
Alameda	1,059	1,230	2,339	Mountainous.
Colusa	12,119	-----	12,119	Mountainous.
Contra Costa	1,230	-----	1,230	Mountainous.
Fresno	63,416	3,440	63,856	Mountainous.
Glenn	1,920	-----	1,920	Mountainous.
Kern	22,527	640	23,167	Mountainous.
Kings	1,068	-----	1,068	Mountainous.
Lake	152,420	2,560	154,980	Mountainous.
Merced	4,557	-----	4,557	Mountainous.
Mendocino	184,141	2,960	187,101	Mountainous.
Monterey	189,332	2,560	191,892	Mountainous.
Napa	42,908	-----	42,908	Mountainous.
San Benito	171,332	7,640	178,972	Mountainous.
San Joaquin	1,501	-----	1,501	Mountainous.
San Luis Obispo	180,790	2,712	183,502	Mountainous.
Santa Barbara	16,774	-----	16,774	Mountainous.
Santa Clara	55,903	3,630	59,533	Mountainous.
Solano	1,980	-----	1,980	Mountainous.
Sonoma	46,211	4,640	50,851	Mountainous.
Stanislaus	19,211	2,600	21,811	Mountainous.
Ventura	5,803	-----	5,803	Mountainous.
Yolo	6,400	640	7,040	Mountainous.
Totals	1,179,672	35,332	1,215,004	
Susanville—				
Lassen	733,135	32,560	765,695	Timber, desert, grazing, mineral.
Modoc	193,240	16,840	210,080	Timber, desert, grazing, farming.
Plumas	8,120	3,877	11,997	Mountainous, timber, mineral.
Sierra	18,480	-----	18,480	Mountainous, timber, mineral.
Totals	592,975	53,277	1,006,252	
Visalia—				
Fresno	138,604	2,314	141,418	Mountainous, grazing.
Kern	67,268	26,724	93,992	Mountainous, grazing.
Kings	17,800	-----	17,800	Mountainous, grazing.
Merced	8,361	-----	8,361	Mountainous, grazing.
Monterey	1,767	-----	1,767	Mountainous, grazing.
San Benito	8,426	-----	8,426	Mountainous, grazing.
Tulare	34,196	65,768	99,964	Mountainous, grazing.
Totals	276,422	55,306	371,728	
State totals ...	15,103,078	4,402,139	19,505,217	

The following seven counties have no unappropriated or unreserved public lands: Marin, Sacramento, San Francisco, San Joaquin, San Mateo, Santa Cruz, Sutter.

FARMS AND FARM LANDS.

California ranks second in land area and twelfth in population among the states of continental United States. The soils vary from heavy clay like "adobe" soils to sandy and gravelly loams.

Over one-fourth (28 per cent) of the land area of the state is in farms. The average value of farm land per acre for the state as a

whole is \$47.16. Between 1900 and 1910 there was an increase of 21.6 per cent in the number of farms as compared with an increase of 60.1 per cent in the population.

During the same period farm property, which includes land, buildings, implements and machinery, and live stock (domestic animals, poultry and bees), increased in value \$818,167,000, or 102.7 per cent.

The average value of a fully equipped farm is \$18,308, an increase of \$7,328 as compared with the average in 1900. The average value per acre of land alone rose from \$21.87 in 1900 to \$47.16 in 1910.

There are 58,926 native white farmers in the state; 26,193 foreign born, white, and 3,078 Negro and other nonwhites, or a total of 88,197.

In addition to 11,389,894 acres of improved land in farms, there is 4,541,767 acres of woodland, and 11,999,783 acres of other unimproved lands in farms, or a total of 27,931,444 acres.

Farm Land.

Farm land is divided into (1) improved land, (2) woodland, and (3) all other unimproved land. *Improved land* includes all land regularly tilled or mowed, land pastured and cropped in rotation, land lying fallow, land in gardens, orchards, vineyards, and nurseries, and land occupied by farm buildings. *Woodland* includes all land covered with natural or planted forest trees, which produce, or later may produce, firewood or other forest products. *All other unimproved land* includes brush land, rough or stony land, swamp land, and any other land which is not improved or in forest. The census classification of farm land as "improved land," "woodland," and "other unimproved land" is one not always easy for the farmers or enumerators to make and the statistics therefore must be considered at best only a close approximation.

Number, Area, and Value of Farms in 1900 and 1910.

	1900	1910	Increased per cent
Population	1,485,053	2,377,549	60.1
Number of farms.....	72,542	88,197	21.6
Land area of state, acres.....	99,898,880	*99,617,280	-----
Land in farms, acres.....	28,828,951	27,931,444	†3.1
Improved land in farms, acres.....	11,958,837	11,889,894	†4.8
Average acres per farm.....	397.4	316.7	†20.3
Total value of farm property.....	\$796,527,955	\$1,614,694,584	102.7
Land	630,444,960	1,317,195,448	108.9
Buildings	77,468,000	133,406,040	72.2
Implements and machinery.....	21,311,670	36,493,158	71.2
Domestic animals, poultry and bees.....	67,303,325	127,599,938	89.6
Average value of all property per farm....	\$10,980.00	\$18,306.00	66.7
Average value of land per acre.....	21.87	47.16	115.6

*Due to the formation of the Salton Sea.

†Decreased. This apparent falling off is due in part to errors in the tabulation in the census of 1900, when certain tracts included in forest reserves in 1910 were included in farm land in 1900.

Summary of Population and Farms, 1850-1910.

Year	Population	Number of farms	Land in farms		Per cent of land area in farms
			All land	Improved	
1850	92,597	872	3,893,965	32,454	3.9
1860	379,994	18,716	8,730,034	2,468,064	8.8
1870	560,247	23,724	11,427,105	6,218,133	11.5
1880	864,694	35,934	16,593,742	10,669,698	16.7
1890	1,213,396	52,894	21,427,293	12,222,839	21.5
1900	1,485,053	72,542	28,828,951	11,958,837	28.9
1910	2,377,549	88,197	27,931,444	11,380,894	28.0

Value of Farm Property, 1910.

The total wealth in the form of farm property is \$1,614,695,000, of which 89.8 per cent is contributed by land and buildings, 7.9 per cent by live stock, and 2.3 per cent by implements and machinery. The value of land and buildings is \$1,450,601,000, being a little more than double that for 1900. In 1850 the value was only \$3,874,000.

The value of the different classes of farm property in 1910 was as follows:

Farm property	Value
Land	\$1,317,195,448
Buildings	133,406,040
Implements and machinery	36,493,158
Domestic animals	123,024,652
Poultry	3,844,526
Bees	729,793
Total	\$1,614,694,584

Summary of Values, 1850-1910.

Year	Total value	Land and buildings	Implements and machinery	Domestic animals, poultry, and bees
1850	\$7,328,582	\$3,874,041	\$103,483	\$3,351,058
1860	86,870,327	48,726,804	2,558,506	35,585,017
1870	184,521,470	141,240,028	5,316,690	37,964,752
1880	*311,997,443	262,051,282	8,447,744	*41,498,417
1890	*777,381,767	697,116,630	14,689,710	*65,575,427
1900	796,527,955	707,912,960	21,311,670	67,303,325
1910	1,614,694,584	1,450,601,488	36,493,158	127,599,938

*Includes estimated value of range animals.

Value of Farm Lands, 1912-1916.

The United States Department of Agriculture estimates the value per acre of farm lands in California and the United States as follows:

Average Value of Plow Lands, Per Acre, 1916-1917.

Average Value of All Farm Lands, Per Acre, 1912-1916.

	Without Improvements			With Improvements		
	1912	1915	1916	1912	1915	1916
California	\$70 00	\$100 00	\$110 00	\$107 00	\$175 00	\$180 00
United States	36 23	40 85	45 55	57 89	64 82	69 45

	1916			1917		
	Average for poor	Average for good	Average for all	Average for poor	Average for good	Average for all
California	\$55 00	\$150 00	\$110 00	\$66 00	\$168 00	\$120 00
United States	42 67	78 34	62 17	47 86	85 48	68 38

Size of Farms.

In California there is a great area of semiarid land utilized for grazing purposes only or left unutilized. Upon such lands are located many very large farms or ranches, and these explain the high average acreage per farm. Farms other than those used almost exclusively for grazing are not on the average unusually large, as compared with the average in other states. The average size of the California farm is 316.7 acres, compared with 4,465.6 in 1850; 466.4 in 1860; 481.7 in 1870, since which time it has decreased continually.

Of all the farms in California, 23.4 per cent are from 20 to 49 acres in size, 13.6 per cent from 100 to 174 acres, 13.5 per cent from 10 to 19 acres, and 12.1 per cent from 50 to 99 acres. Thus over three-fifths of all the farms are from 10 to 174 acres in size. About one-fourth are 175 acres or more. The increase in the relative number of the smaller farms in conjunction with the decline in aggregate farm acreage during the last ten years indicates a tendency to subdivide the large farms into smaller ones.

The following table shows the increase or decrease in the size of farms in 1910, as compared with 1900:

Size	Number of farms		Increase or decrease	
	1900	1910	Number	Per cent
Under 3 acres.....	1,492	1,269	-223	-14.9
3 to 9 acres.....	5,354	9,324	+3,970	+74.2
10 to 19 acres.....	8,236	11,932	+3,696	+44.9
20 to 49 acres.....	13,110	20,614	+7,504	+57.2
50 to 99 acres.....	8,067	10,680	+2,613	+32.4
100 to 174 acres.....	13,196	12,015	-1,181	-8.9
175 to 259 acres.....	4,635	4,689	+54	+1.2
260 to 499 acres.....	8,370	7,862	-508	-6.1
500 to 999 acres.....	5,329	5,119	-210	-3.9
1,000 acres and over.....	4,753	4,693	-60	-1.3
Totals.....	72,542	88,197	+15,655	+21.6

CALIFORNIA STATE BOARD OF AGRICULTURE.

Summary of Farms by Acreage in California, 1850-1910.

Acreage	1850	1860	1870	1880	1890	1900	1910
Under 3 acres.....				143	401	1,492	1,269
3 to 9 acres.....		829	2,187	1,064	2,827	5,354	9,324
10 to 19 acres.....		1,102	1,086	1,430	4,010	8,236	11,932
20 to 49 acres.....		2,344	3,064	3,475	7,691	13,110	20,614
50 to 99 acres.....		2,428	3,224	3,969	5,796	8,067	10,801
100 to 499 acres.....		6,541	12,248	20,214	24,531	26,201	24,566
500 to 999 acres.....		538	1,202	3,108	4,367	5,329	5,119
1,000 acres and over.....		262	713	2,531	3,672	4,753	4,693
Total number of farms.....	872	18,716	23,724	35,984	53,295	72,542	88,197
Average acres per farm.....	4,465.6	466.4	481.7	461.8	405.0	397.4	316.7

Size of Farms, Improved and Unimproved, 1850-1910.

Acreage	1850	1860	1870	1880
Total number of acres in farms.....	3,893,985	8,730,034	11,427,105	16,593,742
Acres of improved land.....	32,454	2,468,034	6,218,133	10,669,698
Acres of unimproved land.....	3,861,531	6,262,000	5,208,972	5,924,044
Per cent of farm land improved.....	0.8	28.3	54.4	64.3

Acreage	1890	1900	1910
Total number of acres in farms.....	21,427,293	28,828,951	27,931,444
Acres of improved land.....	12,222,839	11,958,837	11,369,894
Acres of unimproved land.....	9,204,454	16,870,114	16,561,550
Per cent of farm land improved.....	57.6	41.5	40.8

Farm Tenure.

The number of all farmers is 88,197. Of these, 66,632 are classed as owners, 3,417 as managers, and 18,148 as tenants.

Of the 66,632 owners, 56,500 operate land owned exclusively by them, while 10,132 operate land which they rent in addition to that which they own. The owners hold 75.5 per cent of all farms, tenants 20.6 per cent, and 3.9 per cent is operated by managers. The percentage of tenants for the state (20.6) is above the average for the Pacific States (17.2), but low in comparison with the percentage for the United States as a whole (37).

Farm Mortgages.

The number of mortgaged farms in 1910 amounted to 40.5 per cent of the total number of 66,632 owned by farmers who own all their land, exclusive of those for which no mortgage report was obtained. The percentage is considerably higher than it was in 1890 and 1900:

Owned farms	Number
Free from mortgage.....	39,368
Mortgaged	26,749
Unknown	515
Total.....	66,632

Irrigation of Farm Lands, 1900-1910.

Of the 88,197 farms in the state, 39,352, or rather more than two-fifths (44.6 per cent), are irrigated. The total acreage irrigated is 2,664,104 acres, or 23.4 per cent of the improved land in farms. The enterprises existing in 1910 were capable of supplying water to 3,619,378 acres, and the total acreage included in irrigation projects, completed or under way, was 5,490,360 acres.

The following table shows the number of farms irrigated in comparison with the total number of farms in the state, the total land area, the total land in farms, and the total acreage of improved land in farms, together with the areas not yet irrigated for which water was available, and the acreage included in projects completed or under way:

Land and farms	1900	1910	Increase or decrease	
			Amount	Per cent
Number of all farms.....	72,542	88,197	15,655	21.6
Approximate land area of state.....	99,617,280	99,617,280		
Land in farms.....	28,828,951	27,931,444	-897,507	-3.1
Improved land in farms.....	11,958,837	11,389,894	-568,943	-4.8
Number of farms irrigated.....	25,675	39,352	13,677	53.3
Acreage irrigated.....	1,446,114	2,664,104	1,217,990	84.2
Acreage enterprises capable of irrigating.....	*	3,619,378		
Acreage included in projects.....	*	5,490,360		
Percentage irrigated of number of all farms.....	35.4	44.6	9.2	
Approximate land area of state.....	1.5	2.7	1.2	
Land in farms.....	5.0	9.5	4.5	
Improved land in farms.....	12.1	23.4	11.3	
Excess of acreage enterprises were capable of irrigating over acreage irrigated in 1910.....		955,274		
Excess of acreage included in projects over acreage irrigated in 1910.....		2,826,256		

*No record.

TABLE
Number and Size of Farms

Counties	Under 3 acres	3 to 10 acres	10 to 30 acres	30 to 50 acres	50 to 100 acres
Alameda	148	589	405	424	204
Alpine				1	3
Amador	2	13	19	41	52
Butte	2	116	186	321	143
Calaveras		25	14	48	45
Colusa	1	31	35	85	42
Contra Costa	18	118	127	221	158
Del Norte		2	6	9	13
El Dorado		26	21	60	88
Fresno	6	267	598	3,240	951
Glenn		40	33	106	65
Humboldt	10	78	107	280	245
Imperial	51	46	56	182	227
Inyo	2	28	28	55	75
Kern	11	46	57	320	173
Kings	7	69	159	643	377
Lake	1	10	38	85	80
Lassen		9	4	12	32
Los Angeles	438	2,125	1,820	1,709	693
Madera		13	21	76	23
Marin	6	35	54	36	30
Mariposa		1	4	4	21
Mendocino		42	61	166	151
Merced	1	86	213	694	295
Modoc	5	18	13	21	44
Mono		3	1	1	4
Monterey	11	69	71	182	185
Napa	14	136	223	355	226
Nevada	7	61	36	77	69
Orange	28	531	802	1,043	351
Placer	2	52	109	289	206
Plumas		6	5	9	12
Riverside	42	462	596	614	262
Sacramento	12	167	237	321	170
San Benito	7	87	83	118	93
San Bernardino	76	567	918	708	278
San Diego	20	236	345	414	269
San Francisco	69	50	11	15	7
San Joaquin	9	204	531	797	397
San Luis Obispo	7	65	80	179	137
San Mateo	46	81	55	112	61
Santa Barbara	17	130	140	212	164
Santa Clara	68	773	1,186	1,317	562
Santa Cruz	18	226	198	384	293
Shasta	6	16	29	103	111
Sierra	1	6	3	4	5
Siskiyou	1	21	36	88	98
Solano	6	45	60	198	170
Sonoma	40	918	890	1,040	522
Stanislaus	13	153	319	1,046	459
Sutter		57	101	142	91
Tehama	7	34	119	198	102
Trinity	6	9	9	24	23
Tulare	9	171	390	1,247	647
Tuolumne	1	4	15	28	27
Ventura	13	87	120	199	214
Yolo	4	53	115	283	166
Yuba		13	20	33	34
Totals	1,269	9,324	11,932	20,614	10,680

II.

In 1910, by Counties.

100 to 175 acres	175 to 250 acres	250 to 500 acres	500 to 1,000 acres	1,000 acres and over	Total number of farms	Cost of fertilizers	
						1900	1910
238	116	163	91	44	2,422	\$15,180	\$17,728
4	9	14	3	8	42		
145	64	105	58	38	537	2,140	208
220	127	171	116	98	1,500	21,150	24,935
171	60	127	80	62	632	840	694
90	30	129	104	120	667	8,640	266
256	147	206	140	74	1,465	10,990	1,879
31	11	23	10	9	114		77
212	100	122	52	35	716	2,010	467
609	142	202	119	111	6,245	39,870	34,491
79	31	101	89	119	663	60	906
334	118	147	84	131	1,534	8,750	1,680
400	98	201	51	10	1,322		681
113	41	54	22	20	438	90	221
222	55	116	82	85	1,167	4,420	1,430
287	77	133	42	43	1,837	920	790
144	60	84	53	48	608	170	40
117	51	130	81	63	502	8,700	63
531	192	207	114	85	7,919	200,310	669,152
151	27	66	59	137	573	300	606
35	40	72	111	79	498	4,000	35
97	15	101	51	36	330	420	60
334	131	193	124	154	1,356	5,330	866
165	46	89	100	167	1,856	4,730	3,609
229	68	171	92	75	736	4,280	5
27	12	16	10	17	91	500	
263	127	282	225	243	1,658	2,920	1,252
223	92	112	84	72	1,537	12,690	1,290
88	53	84	41	28	544	5,430	932
175	60	86	52	37	3,165	16,520	71,118
174	69	75	50	36	1,062	13,680	7,786
45	19	37	46	42	221	70	260
262	99	166	104	81	2,688	203,010	323,568
223	96	173	111	91	1,601	2,190	15,274
107	56	144	109	117	921	3,620	191
209	70	75	35	18	2,949	151,320	708,516
337	146	246	156	129	2,298	22,980	42,429
4	1				157	5,600	6,031
395	217	371	221	144	3,286	20,750	10,657
267	123	304	288	214	1,714	2,200	1,027
90	52	67	60	41	665	2,070	13,450
185	105	138	93	171	1,355	8,870	8,133
376	141	147	75	86	4,731	25,490	16,703
188	60	52	25	22	1,466	1,450	3,537
300	96	190	93	66	1,010	990	1,086
25	4	19	18	25	110	1,310	140
388	84	199	124	75	1,114	3,890	571
167	89	156	144	108	1,143	17,700	4,142
506	233	299	202	122	4,772	12,090	12,585
192	83	125	142	175	2,637	1,570	23,180
123	84	123	78	74	873	1,000	80
151	51	191	86	139	1,006	15,720	635
148	23	41	15	10	308	170	170
597	198	364	197	201	4,021	8,900	41,765
105	35	88	43	40	386	2,220	1,347
207	142	155	90	66	1,293	8,780	57,432
170	83	189	107	85	1,255	16,110	5,050
82	30	98	64	67	436	1,700	2,765
12,015	4,689	7,862	5,119	4,653	88,197	\$937,050	\$2,143,993

TABLE III.

Improved and Unimproved Farm Land by Counties, 1910.

Counties	Number of farms	Average acreage of farms	Improved land	Woodland in farms	Other unimproved land	Total land in farms
Alameda	2,422	128.5	177,314	51,484	82,529	311,327
Alpine	42	762.0	7,579	7,597	16,628	32,004
Amador	537	543.3	46,969	114,960	129,801	291,730
Butte	1,500	327.2	247,097	119,126	124,554	490,777
Calaveras	632	429.4	59,104	149,642	62,655	271,401
Colusa	667	783.2	336,509	38,252	147,615	522,376
Contra Costa	1,465	277.4	262,152	28,766	115,515	406,433
Del Norte	114	315.3	12,439	10,574	12,934	35,947
El Dorado	716	294.5	41,682	137,057	32,142	210,881
Fresno	6,245	177.2	590,205	93,194	423,217	1,106,616
Glenn	663	740.9	309,765	67,665	113,768	491,198
Humboldt	1,534	418.9	105,248	174,354	362,934	642,536
Imperial	1,322	169.1	176,069	1,138	46,395	223,602
Inyo	438	251.5	38,696	1,631	69,813	110,142
Kern	1,167	1,202.5	315,387	235,014	852,649	1,403,350
Kings	1,837	203.5	196,569	6,724	170,530	373,823
Lake	603	360.6	42,768	71,388	103,308	217,464
Lassen	502	589.1	122,057	27,688	145,983	295,728
Los Angeles	7,919	95.7	418,998	18,051	320,936	757,985
Madera	573	1,063.2	391,086	41,612	187,965	620,663
Marin	496	529.0	93,115	49,978	120,349	263,442
Mariposa	330	624.4	37,017	85,150	83,892	206,059
Mendocino	1,356	532.0	82,578	247,758	390,989	721,325
Merced	1,856	626.2	607,742	49,818	504,607	1,162,167
Modoc	736	557.2	164,784	75,668	169,682	410,134
Mono	91	1,271.1	43,382	8,303	63,987	115,672
Monterey	1,658	692.0	371,509	140,377	635,530	1,147,416
Napa	1,537	234.6	101,114	193,578	65,888	360,580
Nevada	544	322.4	24,542	48,449	102,407	175,396
Orange	3,165	117.4	189,463	4,476	177,753	371,692
Placer	1,062	233.6	98,608	32,194	117,278	248,080
Plumas	221	607.5	54,281	27,238	52,740	134,259
Riverside	2,688	193.8	278,151	30,231	212,424	520,806
Sacramento	1,601	296.5	275,682	20,964	176,396	473,044
San Benito	921	591.0	186,573	52,466	305,262	544,301
San Bernardino	2,949	70.7	136,625	23,137	48,634	208,396
San Diego	2,298	363.1	234,045	71,020	529,361	834,426
San Francisco	157	13.3	1,562	289	240	2,091
San Joaquin	3,286	232.2	611,762	35,387	115,899	763,048
San Luis Obispo	1,714	926.9	326,928	174,891	1,066,841	1,568,660
San Mateo	665	241.6	100,800	27,334	32,521	160,655
Santa Barbara	1,355	826.9	215,552	276,071	628,852	1,120,475
Santa Clara	4,731	155.3	237,170	153,835	343,814	734,819
Santa Cruz	1,466	107.3	66,875	44,157	46,276	157,308
Shasta	1,010	385.4	96,217	151,113	141,888	389,218
Sierra	110	765.6	30,794	18,168	35,258	84,220
Siskiyou	1,114	409.2	186,147	82,544	187,185	455,876
Solano	1,143	415.5	310,452	44,534	119,880	474,866
Sonoma	4,772	156.0	248,271	278,507	217,866	744,644
Stanislaus	2,687	241.7	512,189	18,756	118,447	649,392
Sutter	873	441.5	199,510	13,956	171,996	385,462
Tehama	1,066	909.8	186,642	206,234	522,351	915,227
Trinity	308	296.5	13,900	31,882	46,128	91,310
Tulare	4,021	259.9	507,024	161,360	376,847	1,045,231
Tuolumne	386	500.2	36,407	62,215	94,450	193,072
Ventura	1,293	425.5	213,868	56,061	280,270	550,199
Yolo	1,255	369.2	317,268	77,576	68,539	463,383
Yuba	436	571.3	94,250	70,175	84,683	249,106
Totals	88,197	av. 316.7	11,389,894	4,541,767	11,999,783	27,931,444

TABLE IV.

Mortgage Debt on Farms Operated by Owners in 1910.*

Counties	Number free from mortgage	Number with mortgage	Number with no mortgage	Farms consisting of owned land only			
				Number reporting debt	Value of their land and buildings	Amount of mortgage	Per cent value of land and buildings
Alameda	1,204	467	19	384	\$3,691,870	\$958,687	26.0
Alpine	22	10		8	87,050	30,800	35.4
Amador	364	72	1	62	347,628	86,515	24.9
Butte	745	470	15	385	3,325,191	807,233	24.3
Calaveras	456	95	5	71	857,205	95,060	26.6
Colusa	251	196	2	123	1,443,045	444,355	30.8
Contra Costa	642	243	5	184	2,122,140	574,965	27.1
Del Norte	59	20		16	137,300	44,900	32.7
El Dorado	492	145	5	127	567,100	161,873	28.5
Fresno	2,072	3,128	27	2,734	24,983,327	6,388,563	25.6
Glenn	291	220	1	170	1,703,360	403,568	23.7
Humboldt	687	293	11	230	2,436,615	611,134	25.1
Imperial	584	236	4	194	2,867,600	697,384	24.3
Inyo	254	106	1	96	1,184,200	277,142	19.2
Kern	530	311	5	256	2,764,650	751,974	27.2
Kings	642	747	2	587	5,888,820	1,541,990	26.2
Lake	346	132	6	107	847,400	213,200	25.2
Lassen	290	122	2	108	1,464,400	272,163	18.6
Los Angeles	3,176	2,321	102	1,889	31,540,310	6,465,025	20.5
Madera	294	114	11	77	1,182,365	190,817	16.1
Marin	118	73	5	65	664,175	259,074	39.0
Mariposa	242	39	11	35	250,720	52,275	20.8
Mendocino	796	266	7	225	1,832,841	453,647	24.8
Merced	613	782	10	584	6,570,345	1,409,143	21.4
Modoc	432	159	3	130	1,786,230	354,669	19.9
Mono	63	12		10	230,900	52,350	22.7
Monterey	749	295	19	222	3,002,171	755,391	25.2
Napa	750	411	5	358	2,905,375	745,253	25.7
Nevada	398	76	2	63	260,165	56,270	21.6
Orange	1,294	1,228	9	957	12,557,760	2,934,955	23.4
Placer	478	269	1	217	1,614,735	371,680	23.0
Plumas	131	51	1	43	566,940	113,354	20.0
Riverside	1,279	996	16	816	11,969,410	2,953,463	24.7
Sacramento	673	326	12	273	3,894,145	840,241	21.6
San Benito	385	262	6	210	2,354,830	767,233	32.6
San Bernardino	1,344	1,178	10	961	17,434,500	3,958,213	22.7
San Diego	1,339	501	5	342	3,235,500	732,270	22.6
San Francisco	57	14	11	9	126,600	30,250	23.9
San Joaquin	1,181	1,172	17	887	8,729,605	2,272,853	26.0
San Luis Obispo	710	341	5	193	1,779,070	489,925	27.5
San Mateo	249	47	6	39	610,350	103,505	17.0
Santa Barbara	533	227	4	134	2,790,140	706,315	25.3
Santa Clara	2,092	1,500	30	1,186	11,700,415	3,391,948	29.0
Santa Cruz	671	410	7	357	3,667,630	815,705	22.0
Shasta	658	177	4	147	919,980	211,200	23.0
Sierra	72	21		17	160,500	48,350	30.1
Siakiyou	688	251	9	210	2,760,855	683,580	24.8
Solano	441	328	4	237	3,732,565	992,293	26.6
Sonoma	2,254	1,498	19	1,399	11,018,235	3,009,142	27.3
Stanislaus	890	1,301	9	972	9,721,155	2,394,773	24.6
Sutter	362	307	5	225	3,076,708	785,106	25.5
Tehama	518	288	4	241	2,061,515	543,342	26.4
Trinity	233	40	1	36	221,425	51,498	23.3
Tulare	1,778	1,511	18	1,197	15,911,023	3,263,701	20.5
Tuolumne	269	71	2	63	378,650	98,677	26.1
Ventura	497	363	5	229	6,013,275	1,098,618	18.3
Yolo	482	397	8	283	4,329,746	1,154,656	26.7
Yuba	248	83	1	50	417,430	114,374	27.4
Totals	39,368	26,749	515	21,430	\$250,199,190	\$60,036,660	24.0

*No mortgage reports were secured for farms operated by tenants or managers.

PART II.

POPULATION OF CALIFORNIA.

Population 1850-1916; Indians of California; Density of Population; Population of Municipalities of 8,000 and Upwards; Cities of 2,500 to 6,000; Urban and Rural Population; Blind Population; Mortality Statistics; Marriages, Births and Deaths 1915-1917; Estimated Population of Cities and Towns, 1915; Population by Counties, 1850-1910; White and Colored Population; Foreign-born Population; Japanese Farmers, 1912; Color and Nativity of Farmers.

The first settlement in California was made by the Spaniards in 1769, when the Franciscan Fathers founded a mission at San Diego. In 1776 the Mission Dolores was established where San Francisco now stands. California was under Spanish rule until 1822, when, at the termination of the Mexican revolution, it declared its allegiance to Mexico. For several years prior to 1846 large numbers of immigrants from the United States had been arriving in California, and in June of that year a revolt against Mexico was begun by the American settlers. In July and August the American flag was raised at Monterey, San Francisco, Sonoma, Sacramento, San Jose, San Diego, Santa Barbara, Los Angeles, and other places.

The end of the war in Mexico took place January, 1847, and in February, 1848, California was ceded to the United States. From 1846 to 1849 California was under military and provisional rule by the United States. In October, 1849, a state constitution was adopted at Monterey, and on September 9, 1850, California became a state of the Union.

Population of California, 1850-1916.

Year	Population	Increase over preceding census	
		Number	Per cent
1850	92,597		
1860	379,994	287,397	310.4
1870	560,247	180,253	47.4
1880	864,694	304,447	54.3
1890	*1,213,398	348,704	40.3
1900	1,485,053	271,655	22.4
1910	2,377,549	892,496	60.1
1916	2,938,654		

*Includes population of Indian reservations (5,268).

During each decade since 1850, the population of California has increased more rapidly than that of continental United States. The population of the state in 1910 was more than twenty-five times as large as in 1850, while the population of the continental United States was a little less than four times that in 1850.

Rank in Population of the Fifty States and Territories.

California ranked twenty-ninth in 1850, twenty-sixth in 1860, twenty-fourth in 1870 and 1880, twenty-second in 1890, twenty-first in 1900, and twelfth in 1910.

The Density of Population Per Square Mile, 1850-1910.

1850	1860	1870	1880	1890	1900	1910
.6	2.4	3.0	5.5	7.8	9.5	15.3

The density of population in California is low, the average number of persons to the square mile in 1910 being 15.3; and the estimated number in 1916, 18.9. The average number per square mile for continental United States in 1910 was 30.9. This compares with 508.8 in Rhode Island, 418.8 in Massachusetts, 337.7 in New Jersey, 191.2 in New York, 342.4 in the United Kingdom, and 213.3 in India. The Australian commonwealth has only 1.39 to the square mile, New Zealand 7.8, and Canada 1.4; 589 in Belgium, 436 in Holland, 188 in France, and 270 in Germany.

Population of Municipalities Having 8,000 or More Population April 15, 1910, and July 1, 1916, and Land Area on July 1, 1915.

Municipality	Land area in acres, July 1, 1915	Census		
		June 1, 1900	Apr. 15, 1910	July 1, 1916
Alameda	4,149.3	16,464	23,383	27,732
Bakersfield	3,680.0	6,127	12,727	16,874
Berkeley	5,280.0	13,214	40,434	57,653
Eureka	3,734.2	7,327	11,845	14,684
Fresno	3,913.0	12,470	24,892	34,958
Long Beach	8,435.2	2,252	17,809	27,587
Los Angeles	183,464.0	104,266	*319,198	503,812
Oakland	31,591.0	66,960	150,174	198,604
Pasadena	8,460.8	9,117	30,291	46,450
Pomona	8,000.0	5,526	10,207	13,150
Redlands	10,300.0	4,797	10,449	14,000
Riverside	25,088.0	7,973	15,212	19,763
Sacramento	8,900.0	29,282	44,696	66,896
San Bernardino	4,321.0	6,150	12,779	16,945
San Diego	47,323.1	17,700	39,578	53,330
San Francisco	26,632.0	342,782	416,912	463,516
San Jose	5,399.6	21,500	28,946	38,902
Santa Ana	5,760.0	4,933	8,429	10,627
Santa Barbara	6,510.0	6,587	11,659	14,846
Santa Cruz	5,780.0	5,659	11,146	14,594
Stockton	5,141.0	17,506	23,253	35,358
Vallejo	2,484.0	7,965	11,340	13,461

*Includes the population of San Pedro city, annexed in 1909.

San Francisco, the largest city, had a population in 1910 of 416,912, and Los Angeles, the second city, a population of 319,198. Oakland, with 150,174 inhabitants, is the only other city in the state having over 100,000 inhabitants. The following eight cities had over 25,000 inhabitants in 1910:

City	Population, 1910	Increase over preceding census	Per cent
Berkeley	40,434	27,220	206.0
Los Angeles	319,198	216,719	211.5
Oakland	150,174	83,214	124.3
Pasadena	30,291	21,174	232.2
Sacramento	44,696	15,414	52.6
San Diego	39,578	21,878	123.6
San Francisco	416,912	74,180	21.6
San Jose	28,946	7,446	34.6

Cities of 2,500 to 6,000 (24) in 1910.

Richmond	6,802	Redding	3,572
Petaluma	5,880	Corona	3,540
San Luis Obispo	5,157	Red Bluff	3,530
Alhambra	5,021	San Leandro	3,471
Hanford	4,829	Redondo Beach	2,935
Grass Valley	4,520	Glendale	2,746
Palo Alto	4,486	Hayward	2,746
Coalinga	4,199	Porterville	2,696
Colton	3,980	Anaheim	2,628
Oroville	3,859	Emeryville	2,613
Chico	3,750	Roseville	2,608
Salinas	3,736	Oxnard	2,555

California has 58 counties, the population ranging from 309 in Alpine to 504,131 in Los Angeles County.

Two territorial changes have taken place since 1900: The eastern portion of San Diego County was taken into Imperial County in 1907, and part of Fresno County was annexed to Kings County in 1909.

Ten counties have decreased in population during the decade 1900-1910, the rates of decrease ranging from 5.8 per cent in Mono County, to 39.3 in Alpine County, and a decrease from 125 in Mono County to 2,834 in Nevada County.

San Bernardino County, with 20,157 square miles, has the largest area; San Francisco County, coextensive with San Francisco city, with 43 square miles and 9,695.6 persons per square mile, has the smallest area and the highest density. Alpine, Inyo, and Mono counties each average less than one person per square mile. In 1910 the urban territory of the state, or the cities and incorporated towns of 2,500 or more, contained 61.8 per cent of the total population, while 38.2 per cent lived in rural territory.

Urban and Rural Population.

The urban territory of the state in 1910—that is, the cities, and incorporated towns of 2,500 or more—contained 1,469,739 inhabitants, or 61.8 per cent of the total population, while 907,810 inhabitants, or 38.2 per cent, lived in rural territory.

In 128 places of less than 2,500 inhabitants each have an aggregate population of 153,052, or 6.4 per cent of the total population of the state. In 1910, therefore, the urban population was 1,469,739 and the rural territory 907,810, the latter made up as follows: Cities and towns of less than 2,500, 153,052; other rural territory 704,758, or a total of 907,810.

White and Colored Population.

Three municipalities having 8,000 or more population in 1910, had 10,000 or more colored, or at least ten per cent of their population colored.

Municipality	Census, 1910		Estimated, 1916	
	White	Colored	White	Colored
San Francisco	400,014	16,898	446,937	16,579
Los Angeles	305,307	13,891	481,989	21,823
Riverside	13,506	1,706	17,368	2,395

BLIND POPULATION IN CALIFORNIA.

(Census Report of 1910.)

Years	Male	Female	Total	Years	Male	Female	Total
Under 1		1	1	50 to 54	73	20	93
1 to 4	2	2	4	55 to 59	53	23	76
5 to 9	6	6	12	60 to 64	93	22	115
10 to 14	20	16	36	65 to 69	99	27	126
15 to 19	32	28	60	70 to 74	66	41	107
20 to 24	26	19	45	75 to 79	85	46	131
25 to 29	27	10	37	80 to 84	71	42	113
30 to 34	34	15	49	85 and over	56	48	104
35 to 39	36	12	48	Age not reported	2	2	4
40 to 44	52	20	72				
45 to 49	75	21	96	Totals	908	421	1,329

MORTALITY STATISTICS.

The number of deaths of all ages in the registration area and its subdivisions and each city of 100,000 population or over for the calendar years 1914 and 1915 are classified as follows:

1914	Number of deaths	1915	Number of deaths
Under 1 year.....	3,956	Under 1 year.....	3,565
1 year.....	771	1 year.....	663
2 years.....	421	2 years.....	371
3 years.....	260	3 years.....	275
4 years.....	184	4 years.....	199
Under 5 years.....	5,592	Under 5 years.....	5,073
5 to 9.....	641	5 to 9.....	647
10 to 14.....	435	10 to 14.....	438
15 to 19.....	716	15 to 19.....	799
20 to 24.....	1,417	20 to 24.....	1,350
25 to 29.....	1,818	25 to 29.....	1,871
30 to 34.....	1,959	30 to 34.....	1,894
35 to 39.....	2,091	35 to 39.....	2,153
40 to 44.....	2,157	40 to 44.....	2,096
45 to 49.....	2,182	45 to 49.....	2,279
50 to 54.....	2,449	50 to 54.....	2,504
55 to 59.....	2,368	55 to 59.....	2,674
60 to 64.....	2,652	60 to 64.....	2,789
65 to 69.....	2,742	65 to 69.....	3,024
70 to 74.....	2,833	70 to 74.....	3,095
75 to 79.....	2,462	75 to 79.....	2,639
80 to 84.....	1,829	80 to 84.....	2,126
85 to 89.....	860	85 to 89.....	1,070
90 to 94.....	298	90 to 94.....	324
95 to 99.....	60	95 to 99.....	72
100 years and over.....	15	100 years and over.....	21
Deaths at unknown age.....	16	Deaths at unknown age.....	50

SUICIDE.—In 1915, as in other years, in well over half of the deaths charged to this heading, the means used were poison and firearms. Among the registration states the highest rate was that for California (35.5 per 100,000 population). Next in order were Montana, with 23.1, Washington, 20.7, and Missouri, 19.9.

Among the registration cities having 100,000 inhabitants or more, the highest five for 1915 were: San Francisco 56.6, Omaha 41.7, St. Louis 36.5, Los Angeles 33.7 and Kansas City, Mo. 30.7.

TABLE V.
Marriages, Births, and Deaths in California, 1915-1917.
(From State Board of Health.)

County	Marriages			Births			Deaths		
	1915	1916	*1917	1915	1916	*1917	1915	1916	*1917
Alameda	2,864	2,774	3,540	4,600	4,658	5,205	3,677	3,570	3,792
Alpine	2		4	4	3	2	2	1	
Amador	35	51	39	139	164	140	120	152	141
Butte	216	191	275	513	456	493	368	347	405
Calaveras	33	33	30	71	83	91	98	76	94
Colusa	40	40	51	140	144	142	108	91	119
Contra Costa	269	226	257	707	842	896	389	436	454
Del Norte	36	30	51	53	43	41	14	35	28
El Dorado	37	37	37	102	97	104	114	152	127
Fresno	895	1,059	1,155	1,983	2,180	2,415	1,071	1,116	1,343
Glenn	52	69	65	106	139	167	70	76	68
Humboldt	305	329	339	448	601	580	370	422	392
Imperial	216	244	307	421	508	589	270	319	379
Inyo	37	54	62	18	28	20	43	45	54
Kern	444	486	494	685	827	958	465	564	548
Kings	210	183	251	350	386	387	221	208	253
Lake	28	32	31	82	77	85	81	71	59
Lassen	59	57	59	110	132	115	60	66	68
Los Angeles	6,981	6,910	7,888	12,106	12,302	12,723	9,590	10,088	10,546
Madera	93	118	130	197	213	226	88	115	115
Marin	657	575	612	271	294	234	279	264	319
Mariposa	17	10	16	31	36	32	32	41	39
Mendocino	167	185	174	357	387	354	309	359	320
Merced	139	153	184	391	373	361	217	200	182
Modoc	64	55	75	110	110	104	39	41	42
Mono	3	2	4	1	7	6	6	9	4
Monterey	177	205	315	360	449	461	298	325	337
Napa	230	252	263	207	217	233	551	531	545
Nevada	97	85	89	187	198	177	219	204	205
Orange	1,401	1,467	1,502	1,185	1,028	1,059	620	584	650
Placer	89	104	90	374	347	354	251	239	250
Plumas	36	29	31	59	81	61	70	61	82
Riverside	482	484	608	611	731	678	468	556	582
Sacramento	945	1,145	1,299	1,628	1,724	1,783	1,165	1,204	1,417
San Benito	63	71	109	213	174	187	108	92	104
San Bernardino	726	821	957	1,211	1,422	1,313	1,148	1,159	1,274
San Diego	1,353	1,322	1,690	1,472	1,525	1,557	1,356	1,438	1,431
San Francisco	6,817	5,981	6,746	7,624	7,816	7,872	7,259	7,163	7,156
San Joaquin	794	806	1,030	1,031	1,092	1,291	1,148	1,183	1,375
San Luis Obispo	193	211	258	313	391	434	232	230	234
San Mateo	362	326	505	497	552	514	361	357	364
Santa Barbara	283	290	406	590	709	727	384	427	449
Santa Clara	956	878	1,089	1,673	1,682	1,655	1,562	1,566	1,611
Santa Cruz	276	293	346	475	410	414	410	395	352
Shasta	120	147	157	251	252	245	231	229	248
Sierra	12	9	14	38	35	30	37	34	35
Slakiyou	177	171	215	307	405	378	180	229	245
Solano	232	271	319	400	437	465	324	319	374
Sonoma	482	442	545	745	820	743	720	689	736
Stanislaus	259	297	386	616	645	719	359	378	420
Sutter	43	31	51	119	144	114	72	87	96
Tehama	107	96	121	166	213	187	145	143	164
Trinity	21	6	8	31	27	22	43	38	31
Tulare	345	369	398	828	992	1,006	445	442	538
Tuolumne	59	63	58	51	75	86	99	120	121
Ventura	184	183	273	418	534	526	286	285	344
Yolo	115	123	156	240	282	282	211	181	199
Yuba	116	115	119	159	139	157	163	158	156
Totals	31,451	30,996	36,283	48,075	50,638	52,190	39,026	39,860	42,016

*Figures for 1917 are not quite complete, as delayed certificates are still coming in.

ESTIMATED POPULATIONS OF CITIES AND TOWNS IN 1915.

(From the Report of the State Controller, 1915.)

The populations of the various cities of the state which follow are based upon estimates. It is not claimed that they are correct, but presumably they are approximately so—at any rate they are as near the mark as the various city clerks or auditors can hit it after careful investigation.

The difference in the totals as ascertained by three methods is not great, 150,000 separating the highest from the lowest, as follows:

School census method.....	3,004,000
Registered vote method.....	2,878,470
United States census method.....	2,854,727

On the basis of the percentage of increase according to the census bureau's method, the rural population of the state should be 837,781. The cities claim 2,450,181. The two figures give a total of 3,287,962, which exceeds the highest estimate by any of three methods indicated.

The total numbers for the state are probably approximately correct, but as regards cities and towns, the estimated increase is in many cases too high. Some are rapidly increasing, but the population of others is more or less stationary, and in some cases on the decline. During the decade between 1900 and 1910 ten counties showed a decrease in population, the rates of decrease ranging from 5.8 per cent in Mono County to 39.3 per cent in Alpine County, and the absolute decreases from 125 in Mono County to 2,834 in Nevada County.

TABLE VI.

Estimated Population of Cities and Towns in California on June 30, 1915.

(From the Report of the State Controller.)

City	Population per 1910 census	Estimated population June 30, 1915	City	Population per 1910 census	Estimated population June 30, 1915
Alameda	23,383	30,000	Eureka	11,845	15,000
Albany	808	1,900	Exeter		2,000
Alhambra	5,021	9,000	Fairfield	834	1,000
Alturas	916	1,500	Ferndale	906	1,000
Alviso	402	550	Fillmore		1,700
Amador	1,009	1,100	Firebaugh	450	600
Anaheim	2,628	4,178	Fort Bragg	2,408	3,000
Angels		2,500	Fort Jones	316	500
Antioch	1,124	2,000	Fortuna	883	1,150
Arcadia	696	1,060	Fowler	675	1,250
Arcata	1,121	1,600	Fresno	24,892	45,000
Arroyo Grande		1,200	Fullerton	1,725	3,300
Auburn	2,376	2,366	Gilroy	2,437	2,900
Avalon		750	Glendale	2,746	7,556
Azusa	1,477	2,000	Glendora	1,000	2,200
Bakersfield	12,727	19,220	Grass Valley	4,520	5,100
Banning		1,500	Gridley	987	1,800
Beaumont		750	Hanford	4,829	6,250
Belvedere	481	550	Hayward	2,746	4,000
Benicia	2,360	2,400	Healdsburg	2,011	3,000
Berkeley	40,434	60,000	Hemet	992	1,800
Beverly Hills		590	Hercules	279	380
Biggs	403	500	Hermosa Beach	679	2,000
Bishop	1,190	1,750	Hillsborough		900
Blue Lake	507	614	Hollister	2,308	2,500
Brawley	881	3,000	Holtville	729	2,000
Burbank		2,000	Huntington Beach	815	2,500
Burlingame	1,585	3,750	Huntington Park	1,299	3,500
Calxico	797	3,000	Imperial	1,257	3,000
Calistoga	751	900	Inglewood	1,536	3,500
Chico	3,750	6,200	Jackson	2,035	2,500
Chino	1,444	2,200	Kenett	1,714	1,500
Chula Vista		2,000	King		1,050
Claremont	1,114	1,500	Kingsburg	634	1,325
Cloverdale	823	1,100	La Mesa	1,200	1,400
Clovis	1,000	1,500	Lakeport	870	1,100
Coalinga	4,199	2,500	Larkspur	594	2,000
Colfax	621	1,050	Lemoore	1,000	2,000
Colusa	1,582	2,000	Lincoln	1,402	1,500
Colton	3,980	5,500	Lindsay	1,814	2,500
Compton	922	1,500	Livermore	2,030	2,450
Concord	703	750	Lodi	2,697	4,200
Coram	666	150	Lompoc	1,482	1,650
Corcoran		700	Long Beach	17,809	32,252
Corning	972	2,100	Lordsburg	954	1,650
Corona	3,540	5,000	Los Angeles	319,198	550,000
Coronado	1,477	3,600	Los Banos	745	1,000
Covina	1,652	2,500	Los Gatos	2,232	2,250
Crescent City	1,114	1,200	Loyalton	983	600
Daly City		5,000	McKittrick	1,500	500
Delano		575	Madera	2,404	3,300
Dinuba	970	1,900	Manhattan Beach		1,500
Dixon	827	1,200	Maricopa		1,750
Dorris	214	420	Martinez	2,115	3,000
Dunsmuir	1,719	2,200	Marysville	5,430	6,000
Eagle Rock	1,000	1,800	Mayfield	1,041	1,080
East San Diego		4,500	Merced	3,102	4,000
El Cajon		600	Mill Valley	2,551	3,000
El Centro	1,610	6,000	Modesto	4,034	7,200
El Monte		1,200	Monrovia	3,576	5,500
El Paso de Robles	1,441	1,800	Montague	274	450
Elsinore	488	700	Monterey	4,923	5,000
Emeryville	2,613	2,950	Morgan Hill	607	660
Escondido	1,334	2,000	Mountain View	1,161	1,400
Etna	518	518	Napa	5,791	6,500

TABLE VI—(Continued).

Estimated Population of Cities and Towns in California on June 30, 1915.

City	Population per 1910 census	Estimated population June 30, 1915	City	Population per 1910 census	Estimated population June 30, 1915
National City	1,733	3,400	San Marino		550
Needles		3,500	San Mateo	4,384	6,000
Nevada City	2,689	3,000	San Rafael	5,934	6,000
Newman	892	1,100	Santa Ana	8,429	14,500
Newport Beach	445	1,500	Santa Barbara	11,659	15,000
Oakdale	1,035	1,500	Santa Clara	4,348	6,000
Oakland	150,174	185,000	Santa Cruz	11,146	13,600
Oceanside	673	1,100	Santa Maria	2,260	2,750
Ontario	4,274	7,000	Santa Monica	7,847	12,000
Orange	2,920	4,500	Santa Paula	2,216	3,100
Orland	836	1,800	Santa Rosa	7,817	11,000
Oroville	3,859	3,300	Sausalito	2,383	2,500
Oxnard	2,555	3,500	Sawtelle	2,143	4,500
Pacific Grove	2,384	2,500	Sebastopol	1,233	1,900
Palo Alto	4,486	6,000	Selma	1,750	2,500
Pasadena	30,291	39,000	Sierra Madre	1,303	1,750
Perris	1,441	900	Sission	636	500
Petaluma	5,880	7,500	Sonoma	957	1,280
Piedmont	1,719	3,200	Sonora	2,029	2,029
Pinole	798	1,500	South Pasadena	4,649	7,500
Pittsburg	2,372	4,000	South San Francisco	1,989	3,500
Placerville	1,914	2,150	St. Helena	1,603	1,800
Pleasanton	1,254	1,300	Stanton		575
Point Arena	497	500	Stockton	23,253	42,000
Pomona	10,207	14,500	Suisun	641	800
Porterville	2,696	4,000	Sunnyvale		1,650
Potter Valley	576	830	Susanville	688	1,000
Red Bluff	3,530	5,072	Sutter Creek		1,300
Redding	3,572	4,800	Taft		3,500
Redlands	10,449	11,500	Tehachapi	385	500
Redondo Beach	2,935	4,750	Tehama	221	300
Redwood City	2,442	3,500	Tropicco		3,000
Reedley	1,386	2,200	Tracy	1,129	2,500
Rialto	1,000	1,300	Tulare	2,758	3,200
Richmond	6,802	16,000	Turlock	1,573	3,200
Rio Vista	884	1,000	Ukiah	2,136	2,600
Riverside	15,212	19,000	Upland	2,384	3,000
Rocklin	1,026	1,000	Vacaville	1,177	1,250
Roseville	2,608	4,500	Vallejo	11,340	15,000
Ross	556	875	Venice	3,219	8,500
Sanger		2,600	Vernon	772	1,350
Sacramento	44,696	75,000	Visalia	4,550	6,000
Salinas	3,736	5,000	Walnut Creek	450	800
San Anselmo	1,531	3,500	Watsonville	4,446	6,000
San Bernardino	12,779	18,000	Watts	1,922	3,500
San Buenaventura	2,945	3,500	Wheatland	481	500
San Bruno		1,500	Whittier	4,550	7,536
San Diego	39,578	90,000	Willits	1,153	2,300
San Fernando		2,400	Willows	1,139	3,000
San Francisco	416,912	530,000	Winters	910	1,200
San Gabriel		1,700	Woodland	3,187	5,000
San Jacinto	898	1,250	Yreka	1,134	1,500
San Jose	28,946	34,000	Yuba City	1,160	1,700
San Juan	326	550			
San Leandro	3,471	4,500			
San Luis Obispo	5,157	6,500	Totals	1,634,805	2,450,181

TABLE VII.
Population in California by Counties, 1850-1910.
(Census Reports.)

Counties	1850	1860	1870	1880	1890	1900	1910
Alameda		8,927	24,237	62,976	93,864	130,197	246,181
Alpine			685	539	667	509	309
Amador		10,930	9,582	11,384	10,320	11,116	9,086
Butte	8,574	12,106	11,403	18,721	17,939	17,117	27,301
Oalaveras	16,884	16,299	8,895	9,094	8,882	11,200	9,171
Colusa ¹	115	2,274	6,165	13,118	14,640	7,364	7,732
Contra Costa ²		5,328	8,461	12,525	13,515	18,046	31,674
Del Norte ³		1,993	2,022	2,584	2,592	2,408	2,417
El Dorado	20,067	20,562	10,309	10,683	9,232	8,986	7,492
Fresno ⁴		4,605	6,336	9,478	32,026	37,862	75,657
Glenn ⁵						5,150	7,172
Humboldt ⁶		2,694	6,140	15,512	23,469	27,104	33,857
Imperial ¹¹							13,591
Inyo			1,956	2,928	3,544	4,377	6,974
Kern			2,925	5,601	9,808	16,480	37,715
Kings ⁷						9,871	16,230
Klamath ⁷		1,803	1,686				
Lake			2,969	6,596	7,101	6,017	5,526
Lassen			1,327	3,340	4,239	4,511	4,802
Los Angeles ⁸	3,530	11,333	15,309	33,381	101,454	170,298	504,131
Madera ⁹						6,364	8,368
Marin	323	3,334	6,903	11,324	13,072	15,702	25,114
Mariposa	4,379	6,243	4,572	4,339	3,787	4,720	3,956
Mendocino	55	3,967	7,545	12,800	17,612	20,466	23,929
Merced		1,141	2,807	5,656	8,085	9,215	15,148
Modoc				4,399	4,966	5,076	6,191
Mono			430	7,499	2,002	2,167	2,042
Monterey	1,872	4,739	9,876	11,302	18,637	19,380	24,146
Napa	405	5,521	7,163	13,235	16,411	16,451	19,300
Nevada		16,446	19,134	20,823	17,369	17,789	14,955
Orange ⁹					13,589	19,696	34,438
Placer		13,270	11,357	14,232	15,101	15,786	18,237
Plumas		4,363	4,489	6,180	4,933	4,657	5,259
Riverside ⁹						17,897	34,696
Sacramento	9,087	24,142	26,830	34,390	40,339	45,915	67,306
San Benito				5,584	6,412	6,633	8,041
San Bernardino ⁹		5,551	3,988	7,786	25,497	27,929	56,706
San Diego ⁹	798	4,324	4,951	8,618	34,967	35,090	61,665
San Francisco ³		56,802	149,473	233,959	296,997	342,782	416,912
San Joaquin	3,647	9,435	21,050	24,349	28,629	35,452	50,731
San Luis Obispo	336	1,782	4,772	9,142	16,072	16,637	19,383
San Mateo		3,214	6,635	8,669	10,087	12,094	26,585
Santa Barbara	1,185	3,543	7,784	9,513	15,754	18,934	27,738
Santa Clara ⁹		11,912	26,246	35,039	48,005	60,216	83,539
Santa Cruz	643	4,944	8,743	12,802	19,270	21,512	26,140
Shasta	378	4,360	4,173	9,492	12,133	17,318	18,920
Sierra		11,387	5,619	6,623	5,051	4,017	4,098
Siskiyou ¹⁰		7,629	6,848	8,610	12,163	16,962	18,801
Solano	580	7,169	16,871	18,475	20,946	24,143	27,599
Sonoma	560	11,867	19,819	25,926	32,721	38,480	48,391
Stanislaus		2,245	6,499	8,751	10,040	9,550	22,527
Sutter	3,444	3,390	5,030	5,159	5,469	5,886	6,328
Tehama		4,044	3,587	9,301	9,916	10,996	11,401
Trinity	1,635	5,125	3,213	4,999	3,719	4,383	3,301
Tulare ⁹		4,638	4,533	11,281	24,574	18,375	85,440
Tuolumne	8,351	16,229	8,150	7,848	6,082	11,166	9,979
Ventura				5,073	10,071	14,367	18,347
Yolo	1,086	4,716	9,899	11,772	12,654	13,618	13,926
Yuba	9,673	13,668	10,851	11,284	9,636	8,620	10,042
Totals	92,597	379,994	560,247	864,694	1,208,130	1,485,053	2,377,549

¹Glenn organized from part of Colusa in 1892. ²The returns for 1850 for Contra Costa and Santa Clara were lost, and those for San Francisco were destroyed by fire. ³Part annexed to Siskiyou between 1880 and 1890. ⁴Madera organized from part of Fresno in 1893, and another part of Fresno County annexed to Kings in 1909. ⁵Part of Klamath annexed in 1874. ⁶Kings organized from part of Tulare in 1893, enlarged by annexation of part of Fresno County in 1909. ⁷Annexed to Humboldt and Siskiyou in 1874. ⁸Orange organized from part of Los Angeles in 1889. ⁹Riverside organized from part of San Bernardino and San Diego in 1893. ¹⁰Part of Klamath annexed in 1874, and part of Del Norte annexed between 1880 and 1890. ¹¹Organized from part of San Diego County in 1907.

TABLE VIII.
White and Colored Population by Counties, 1900.

Counties	Population, 1900				
	White	Negro	Indian	Chinese	Japanese
Alameda	125,432	1,334	71	2,211	1,149
Alpine	359	3	142	5	
Amador	10,805	28	130	153	
Butte	15,733	106	201	712	365
Calaveras	10,879	69	100	148	4
Colusa	6,840	76	121	274	53
Contra Costa	17,088	47	8	627	276
Del Norte	2,138	1	269		
El Dorado	8,513	99	138	206	30
Fresno	34,570	399	520	1,775	599
Glenn	4,867	18	24	227	14
Humboldt	25,359	12	1,728	5	
Imperial					
Inyo	3,355	15	940	67	
Kern	14,974	208	344	906	48
Kings	9,171	76	51	417	156
Lake	5,492	12	428	82	3
Lassen	4,099	1	381	28	2
Los Angeles	163,975	2,841	69	3,209	204
Madera	5,664	51	401	229	19
Marin	14,999	137	25	489	52
Mariposa	4,410	35	173	102	
Mendocino	18,833	38	1,353	218	23
Merced	8,780	31	4	357	43
Modoc	4,560	7	503	6	
Mono	1,656	1	389	120	1
Monterey	17,707	80	26	857	710
Napa	15,857	29	18	541	6
Nevada	17,024	70	48	632	15
Orange	19,459	98		136	3
Placer	14,494	35	74	1,050	133
Plumas	4,018	3	444	192	
Riverside	16,421	254	809	316	97
Sacramento	40,917	511	24	3,254	1,209
San Benito	6,456	57	36	69	15
San Bernardino	26,605	216	572	388	148
San Diego	32,048	406	2,197	414	25
San Francisco	325,378	1,654	15	13,954	1,781
San Joaquin	32,941	322	1	1,875	313
San Luis Obispo	16,389	77	1	154	16
San Mateo	11,652	89	1	306	46
Santa Barbara	18,256	33	72	459	114
Santa Clara	57,934	251	9	1,788	284
Santa Cruz	20,515	81	67	614	235
Shasta	16,131	203	862	102	20
Sierra	3,669	7	31	309	1
Siskiyou	15,646	38	480	790	8
Solano	22,267	101	2	908	870
Sonoma	37,385	32	316	599	148
Stanislaus	9,223	61	25	236	5
Sutter	5,451	34	20	228	155
Tehama	9,878	147	99	729	143
Trinity	3,803	9	234	336	1
Tulare	17,709	73	175	870	48
Tuolumne	10,804	53	149	158	2
Ventura	13,826	34	5	408	94
Yolo	12,662	172	28	346	410
Yuba	7,651	170	24	719	56
Totals	1,402,727	11,045	15,377	45,753	10,151

TABLE IX.
White and Colored Population by Counties, 1910.

Counties	White	Negro	Indian	Chinese	Japanese	Total*
Alameda	284,520	3,634	41	4,588	3,266	246,181
Alpine	213		94	1	1	309
Amador	8,838	2	143	101	2	9,086
Butte	25,684	122	298	572	295	27,901
Calaveras	8,941	17	161	49	3	9,171
Colusa	7,155	50	169	218	140	7,732
Contra Costa	29,911	67	8	550	1,009	31,671
Del Norte	2,078	1	337	1		2,417
El Dorado	7,198	28	177	58	81	7,492
Fresno	71,215	474	313	1,877	2,233	75,657
Glenn	6,915	15	32	129	33	7,172
Humboldt	32,153	40	1,652	6	6	33,857
Imperial	12,582	65	682	32	217	13,591
Inyo	6,020	21	792	100	41	6,974
Kern	36,007	369	220	841	273	37,715
Kings	15,366	172	32	358	293	16,230
Lake	5,055	11	433	24	3	5,526
Lassen	4,372	1	410	13	6	4,802
Los Angeles	483,478	9,424	97	2,802	8,461	504,131
Madera	7,650	56	419	211	32	8,368
Marin	24,186	145	26	555	199	25,114
Mariposa	3,674	18	192	69	3	3,956
Mendocino	22,310	31	1,170	263	77	23,929
Merced	14,697	75		278	98	15,143
Modoc	5,629	4	546	11	1	6,191
Mono	1,621		386	21	14	2,042
Monterey	22,135	107	29	575	1,121	24,146
Napa	19,437	48	6	205	103	19,800
Nevada	14,558	14	52	309	22	14,955
Orange	33,589	97	21	83	641	34,436
Placer	16,572	55	102	612	862	18,237
Plumas	4,629	5	380	105	20	5,259
Riverside	31,613	518	1,590	187	765	34,696
Sacramento	61,040	631	62	2,143	3,874	67,806
San Benito	7,643	26		66	286	8,041
San Bernardino	54,153	642	573	284	946	56,706
San Diego	58,514	684	1,516	430	520	61,665
San Francisco	400,014	1,642	46	10,582	4,518	416,912
San Joaquin	46,339	307	8	1,968	1,804	50,731
San Luis Obispo	18,693	77	14	165	434	19,383
San Mateo	25,821	67	1	309	858	26,585
Santa Barbara	26,282	108	45	440	863	27,738
Santa Clara	79,849	262	16	1,064	2,299	83,539
Santa Cruz	25,159	83	15	194	689	26,140
Shasta	17,873	159	756	88	42	18,920
Sierra	3,910		54	117	17	4,098
Slaskiyon	17,413	29	1,109	226	24	18,801
Solano	25,432	250	1	811	894	27,559
Sonoma	47,167	43	340	287	554	48,894
Stanislaus	22,129	89	80	161	113	22,522
Sutter	6,012	10	18	79	134	6,328
Tehama	10,809	91	94	309	98	11,401
Trinity	2,908	8	227	163		3,301
Tulare	34,159	190	204	257	615	35,440
Tuolumne	9,698	14	186	75	6	9,979
Ventura	17,132	64	3	235	872	18,347
Yolo	12,618	280	32	198	789	13,926
Yuba	8,909	203	16	493	336	10,042
Totals	2,259,672	21,645	16,371	36,248	41,356	2,377,549

*Not including 1,948 Hindus, 304 Koreans, and 5 Filipinos.

TABLE X.
Foreign-Born Population in California, 1880-1900.

Country of birth	1880	1870	1860	1850	1840
Africa -----	12	48	86	139	168
Asia ¹ -----	346	56	16	164	235
Atlantic islands -----	121	943	3,356	2,587	2,515
Australia -----	896	1,588	2,350	1,905	2,260
Austria -----	727	1,078	1,948	3,687	5,358
Belgium -----	299	291	1,092	663	785
Bohemia -----		90	239	243	504
Canada -----	5,437	10,660	18,889	26,028	29,818
Central America -----	100	124	188	309	481
China -----	34,935	48,790	73,548	71,066	40,262
Cuba -----		45	182		98
Denmark -----	1,328	1,837	3,748	7,784	9,040
England -----	12,227	17,774	24,722	35,503	35,746
Europe ² -----	33	56	109	194	59
Finland -----					2,768
France -----	8,462	8,068	9,580	11,855	12,256
Germany -----	20,919	29,701	42,532	61,472	72,449
Greece -----	93	97	170	259	372
Holland -----	439	452	694	760	1,015
Hungary -----		102	216	369	709
India -----		63	155	202	263
Ireland -----	33,147	54,421	62,962	63,138	44,476
Italy -----	2,987	4,660	7,537	15,495	22,777
Japan -----		32	133	1,224	10,264
Luxemburg -----		11	97	24	42
Mexico -----	9,150	9,339	8,648	7,164	8,066
Norway -----	715	1,000	1,765	3,702	5,060
Pacific Islands ³ -----	334	98	173	1,296	1,069
Poland -----	730	804	1,026	914	1,320
Portugal -----	1,459	2,508	4,705	9,859	12,068
Roumania -----					73
Russia -----	260	540	1,013	3,140	3,421
Scotland -----	3,670	4,949	6,465	9,299	9,467
South America -----	2,250	1,940	1,797	1,966	1,137
Spain -----	470	405	572	886	896
Sweden -----	1,405	1,944	4,209	10,923	14,549
Switzerland -----	1,714	2,927	5,308	9,743	10,974
Turkey -----	13	17	36	202	649
Wales -----	1,262	1,517	1,920	1,860	1,949
West Indies ⁴ -----	304	349	528	670	372
Other countries -----	181	289	20	8	260
Born at sea -----		142	170	277	358
Totals -----	146,528	209,831	292,874	366,309	*367,240

¹Except China, Japan and India. ²Not otherwise specified. ³Except Philippine Islands. ⁴Except Cuba and Porto Rico. *Of this number (367,240) 123,725 were English speaking from United Kingdom, Australia, and Canada.

TABLE XI.
Foreign-Born White Population in California in 1910.

Country*	White population of foreign birth or foreign parentage			
	Foreign born	Native, both parents foreign born	Native, one parent foreign born	Total
Atlantic islands -----	2,860	2,880	973	6,668
Austria -----	17,163	5,576	2,889	25,578
British:				
England -----	48,667	26,096	40,725	115,488
Ireland -----	52,475	69,968	37,216	159,679
Scotland -----	13,694	7,443	11,021	32,158
Wales -----	2,415	1,961	2,559	6,985
Australia -----	3,296	207	2,064	5,567
Canada—French -----	3,109	1,755	3,202	8,066
Canada—other -----	41,445	11,921	35,553	88,919
Total British -----	165,101	119,371	132,340	416,812
Denmark -----	14,208	8,244	4,043	26,495
Finland -----	6,156	2,535	301	8,992
France -----	17,390	8,836	6,387	32,613
Germany -----	76,305	85,362	44,715	206,382
Greece -----	7,918	269	211	8,398
Holland -----	2,304	1,078	1,035	4,417
Hungary -----	3,301	965	366	4,632
Italy -----	63,601	32,651	6,366	102,618
Mexico -----	33,444	10,787	6,806	51,037
Norway -----	9,952	4,666	2,528	17,146
Portugal -----	22,427	21,794	7,398	51,619
Russia -----	16,607	8,946	1,633	27,186
Spain -----	4,218	1,180	1,045	6,443
Sweden -----	26,210	14,797	5,464	46,471
Switzerland -----	14,520	8,861	4,632	28,013
Turkey -----	4,521	1,679	132	6,332
All other -----	9,044	†62,917	8,306	†75,267
Totals -----	517,250	408,364	232,525	1,153,139

*Foreign country in which born; or if native, in which parents were born.

†Exclusive of 161 whites and 5,107 Indians not distributed by state of birth.

NOTE.—The number of British born have increased in ten years from 123,725 to 416,812, an increase of 293,087.

COMPARATIVE SUMMARY.

Color, Nativity, and Parentage, 1890-1910.

Race	1890	1900	1910
White -----	1,111,833	1,402,727	2,259,672
Negro -----	11,322	11,045	21,645
Indian -----	16,624	15,377	16,371
Chinese -----	72,472	45,753	36,248
Japanese -----	1,147	10,151	41,856
All other* -----			2,257
Totals -----	1,213,396	1,485,053	2,377,549
Total native -----	847,089	1,117,813	1,791,117
Total foreign born -----	366,309	367,240	586,432
Total native white -----	818,280	1,086,222	1,742,422
Native parentage -----	497,890	644,428	1,106,533
Foreign parentage -----	217,979	282,830	408,364
Mixed parentage -----	102,411	158,964	232,525
Foreign-born white -----	293,563	816,506	517,250

*Includes 1,948 Hindus, 304 Koreans, and 5 Filipinos.

2-37910

TABLE XII.

Japanese Farmers in 1912.

(Compiled from the Report of the Bureau of Labor Statistics.)

Counties	Owners		Total assessed value	Number of town lots	Total assessed value	Farm land leases	
	Number of farms	Acres				Number	Acres*
Alameda	6	47	\$63,200	36	\$49,300	4	96
Alpine							
Amador							
Butte							
Calaveras							
Colusa							
Contra Costa	2	31	12,380	3	21,050	1	284
Del Norte							
El Dorado							
Fresno	31	4,776	229,020	61	75,695	11	45
Glenn				3	1,750		
Humboldt							
Imperial						7	848
Inyo							
Kern	5	100	1,170	4	2,565		
Kings	13	577	16,320	4	2,175		
Lake							
Lassen							
Los Angeles	27	459	33,800	23	3,560	60	2,418
Madera	4	100	3,600				
Marin							
Mariposa							
Mendocino							
Merced	14	1,049	42,095	2	1,785		
Modoc							
Mono				1	150		
Monterey	2	8	1,280	18	1,050	15	1,741
Napa	1	160	2,300			1	
Nevada	1	320	820	1	1,200		
Orange	5	41	4,190			7	292
Placer	26	732	20,335	4	1,825	23	1,007
Plumas							
Riverside	2	18	1,375	2	600	1	40
Sacramento	17	444	23,290	19	44,200	87	4,682
San Benito	3	60	2,050			5	280
San Bernardino	12	150	11,810	2	285		
San Diego						1	10
San Francisco				5	5,470		
San Joaquin	12	652	24,845	3	1,000	18	1,787
San Luis Obispo							
San Mateo	1	5	1,000	7	3,500	1	8
Santa Barbara						7	327
Santa Clara	4	90	15,365	1	4,750	35	904
Santa Cruz	3	330	9,065	4	3,635	6	220
Shasta	1	82	555				
Sierra				1	300		
Siskiyou							
Solano	11	814	23,230	2	550	5	565
Sonoma	2	66	5,900	3	3,600	1	
Stanislaus	2	40	1,625			1	180
Sutter	1	16	680			2	452
Tehama							
Trinity							
Tulare	15	1,053	47,525	2	2,150	2	60
Tuolumne							
Ventura	2	24	670	6	2,830	2	77
Yolo	5	320	8,830			11	1,278
Yuba	1	162	1,280	1	700		
Totals	331	12,726	\$609,605	218	\$235,675	282	17,596

*In 32 instances the acreage was not reported. Leases recorded from November 1, 1909, to December 1, 1912.

NOTE.—These figures show only the leases recorded in the offices of the various recorders, and do not represent all the land leased to Japanese, as most of the share leases are not recorded.

JAPANESE STATISTICS.

In March, 1912, the Japanese owned 331 farms, containing 12,726 acres, the assessed value of the land being \$478,990, the improvements \$130,615, or a total of \$609,605.

The number of town lots held by Japanese was 218, the assessed value \$136,955, and the improvements \$98,720, or a total of \$235,675.

The information gathered in accordance with an act of the legislature (chapter 134, of 1909) shows that there were 2,548 business establishments, the capital invested in most cases being very small, 68.7 per cent of the total having a capital of less than \$1,000. The total aggregate capital invested, exclusive of that represented by banks, was \$4,075,226. The total annual business transacted by these establishments amounted to \$16,114,407, of which about 37 per cent was carried on with white persons. The total annual rent paid by these Japanese business houses was over \$900,000.

Comparative Summary.

	1909	1912
Owners:		
Acreage	10,791	12,726 + 1,935
Total assessed value.....	\$397,298	\$609,605 + \$212,307
Number of town lots.....		218
Total assessed value.....	\$174,694	\$235,675 + \$60,981
Leases:		
Number	319	282
Acreage	20,294	17,596

Color and Nativity. Of the total population of California, 1,106,533, or 46.5 per cent, are native whites of native parentage; 635,889, or 26.8 per cent, are native whites of foreign or mixed parentage, and 517,250, or 21.8 per cent, are foreign-born whites. The corresponding percentages in 1900 were 43.4, 29.7, and 21.3, respectively, the proportion of native whites of native parentage increasing somewhat during the decade. In 1910 Japanese constituted 1.7 per cent of the population; Chinese, 1.5; Negroes, 0.9; and Indians, 0.7. In 8 of the 58 counties the foreign-born whites represent as much as one-fourth of the population, the percentage being highest (32) in San Mateo. The proportion of native whites of foreign or mixed parentage exceeds one-fourth in 24 counties and is highest in San Francisco County (36.9 per cent).

Dwellings and Families. The total number of dwellings in California is 513,481, and the total number of families 563,636, there being 109.8 families to each 100 dwellings. The average number of persons per dwelling is 4.6, and the average number per family, 4.2.

TABLE XIII.

Color and Nativity of Farmers in 1910 Census Reports.

Counties	Native white	Foreign-born white	Negro and other non-white	Total number of farmers
Alameda	866	1,490	66	2,422
Alpine	24	16	2	42
Amador	387	145	5	537
Butte	1,204	274	22	1,500
Calaveras	420	207	5	632
Colusa	547	112	8	667
Contra Costa	712	715	38	1,465
Del Norte	62	46	6	114
El Dorado	551	150	15	716
Fresno	3,968	2,033	244	6,245
Glenn	502	160	1	663
Humboldt	856	614	64	1,534
Imperial	1,077	143	102	1,322
Inyo	313	98	27	438
Kern	818	298	51	1,167
Kings	1,312	475	50	1,837
Lake	478	122	3	603
Lassen	412	77	13	502
Los Angeles	5,682	1,613	624	7,919
Madera	419	131	23	573
Marin	138	360		498
Mariposa	253	63	14	330
Mendocino	966	363	27	1,356
Merced	1,054	780	22	1,856
Modoc	639	80	17	736
Mono	44	42	5	91
Monterey	933	676	49	1,658
Napa	1,006	527	4	1,537
Nevada	349	184	11	544
Orange	2,362	718	85	3,165
Placer	619	263	180	1,062
Plumas	155	63	3	221
Riverside	2,044	517	127	2,688
Sacramento	885	48	231	1,601
San Benito	616	28	16	921
San Bernardino	2,365	56	17	2,949
San Diego	1,591	58	121	2,298
San Francisco	30	118	9	157
San Joaquin	2,179	97	130	3,286
San Luis Obispo	929	767	18	1,714
San Mateo	258	390	17	665
Santa Barbara	874	448	33	1,355
Santa Clara	2,725	1,860	146	4,731
Santa Cruz	851	588	27	1,466
Shasta	825	151	34	1,010
Sierra	77	32	1	110
Siskiyou	852	218	44	1,114
Solano	620	449	74	1,143
Sonoma	2,737	2,012	23	4,772
Stanislaus	1,879	801	7	2,687
Sutter	696	154	23	873
Tehama	799	188	19	1,006
Trinity	235	55	18	308
Tulare	3,253	707	61	4,021
Tuolumne	241	143	2	386
Ventura	965	307	21	1,293
Yolo	984	255	66	1,255
Yuba	338	91	7	436
Totals	58,926	26,193	3,078	88,197

TABLE XIV.

Number of Schools, Pupils, and Teachers in the State, According to Counties, for the School Term 1916-17.

Counties	Kindergarten			Elementary			High		
	Schools	Pupils	Teachers	Schools	Pupils	Teachers	Schools	Pupils	Teachers
Alameda	2	3,670	55	138	42,955	1,220	15	13,596	408
Alpine				3	35	3			
Amador				44	1,546	63	3	244	14
Butte				89	4,220	165	4	888	42
Calaveras				52	1,477	63	2	142	9
Colusa				39	1,253	57	5	227	25
Contra Costa		256	4	64	7,495	234	7	905	52
Del Norte				16	564	22	1	70	6
El Dorado		20	1	57	1,135	60	1	119	6
Fresno	1	245	5	173	18,818	573	14	3,044	151
Glenn				42	1,610	70	2	275	14
Humboldt		27	1	124	5,911	206	5	1,379	41
Imperial		260	6	60	4,701	167	6	1,384	58
Inyo	1			24	935	36	4	194	14
Kern		712	11	129	7,536	266	6	850	60
Kings				42	3,768	107	3	490	28
Lake				38	924	45	3	178	11
Lassen		76	2	45	1,259	57	2	114	8
Los Angeles	15	857	365	970	100,512	3,083	50	41,244	1,530
Madera		73	1	47	2,041	86	3	202	14
Marin		80	2	53	3,552	113	3	544	33
Mariposa				31	521	28	1	24	2
Mendocino				129	4,221	167	8	655	38
Merced				76	3,828	128	6	436	40
Modoc				41	1,191	55	3	180	15
Mono				11	160	12			
Monterey				101	3,851	146	5	592	39
Napa		26	1	51	2,435	87	3	456	25
Nevada				53	2,071	79	1	386	18
Orange	5	612	12	52	8,588	282	6	2,082	118
Placer				54	2,850	101	3	375	28
Plumas				32	902	36	1	43	4
Riverside	5	421	15	81	7,201	251	9	1,494	109
Sacramento	11	985	30	97	11,006	415	5	3,746	103
San Benito				38	1,239	47	1	191	8
San Bernardino	2	622	17	116	10,649	347	23	2,141	121
San Diego	3	1,295	15	145	12,864	449	10	6,414	213
San Francisco	14	1,155	14	87	53,716	1,347	5	10,227	241
San Joaquin		211	3	105	9,755	296	10	2,066	63
San Luis Obispo		28	1	95	3,515	144	6	389	27
San Mateo	2	400	6	53	5,303	161	3	743	34
Santa Barbara	6	419	9	76	4,756	165	4	836	51
Santa Clara	1	641	13	115	13,888	407	10	4,419	139
Santa Cruz		56	1	66	3,775	150	3	775	40
Shasta				116	2,947	127	3	370	22
Sierra				18	374	19	1	21	3
Siskiyou		26	1	94	3,292	130	3	331	23
Solano	2	91	2	62	3,797	123	6	708	50
Sonoma				162	8,681	288	9	1,356	63
Stanislaus		36	1	92	6,767	204	14	1,211	68
Sutter				35	1,293	56	1	109	8
Tehama				66	2,130	105	3	451	23
Trinity				28	493	26	1	48	4
Tulare		42	1	151	8,809	291	8	1,707	96
Tuolumne				32	1,493	54	2	222	13
Ventura	2	167	8	56	4,065	136	5	704	46
Yolo		52	1	46	2,219	86	3	430	27
Yuba				39	1,487	62	2	308	16
Totals	72	23,560	599	4,951	428,381	13,731	326	112,684	4,454

PART III.

DOMESTIC ANIMALS.

Cattle, Horses, Mules, Asses, Swine, Sheep and Goats; Number and Value of Farm Animals 1875-1916; Imports and Exports of Farm Animals; Horses and Mules by Counties; Cattle, Sheep and Lambs by Counties; Production of Wool by Counties; Goats and Goats Hair; Summary of Domestic Animals by Counties.

Cattle not being native to America, there are no strictly American breeds, but owing to difference in climate, care and ideals of American breeders, the European breeds which have been brought to America have changed to some extent.

Summary of All Domestic Animals and Their Value, 1910.*

Kind	On farms		Not on farms		Total	
	Number	Value	Number	Value	Number	Value
All cattle -----	2,077,025	\$52,785,068	46,176	\$1,604,717	2,123,201	\$54,389,785
Dairy cows -----	467,332	18,597,328	29,962	1,321,897	497,294	19,919,225
Horses -----	468,886	47,099,196	132,521	15,142,841	601,407	62,242,037
Mules -----	69,761	9,016,444	10,612	1,638,381	80,373	10,654,825
Asses and burros -----	2,592	347,315	1,057	45,114	3,649	392,429
Swine -----	766,551	5,106,803	12,168	100,761	778,719	5,207,564
Sheep -----	2,417,477	8,348,997	64,631	232,572	2,482,108	8,581,569
Goats -----	138,413	320,829	7,113	32,629	145,526	353,458
Totals -----		\$123,024,652		\$18,797,015		\$141,821,667

*Most of the domestic animals not on farms are found in cities, towns, and villages.

Neat Cattle.

The Shorthorns, Herefords, and Aberdeen Angus comprise practically all of the pure-blooded cattle in the United States used for breeding and for grading up native cattle for beef purposes.

Breeds of Dairy Cattle.

The first importation of Ayrshires to this country was made in 1822, since which time there have been frequent importations; New England, New York and Pennsylvania probably contain the largest number of representatives of the breed.

Considerable attention has been given to breeding cows for dairy purposes only, and with this object in view large importations have been made of the Jerseys and Guernseys.

The Guernsey breed was imported in the early part of the nineteenth century from the Channel Islands of Guernsey and Alderney. Since that time there have been importations almost every year, and the breed has maintained a steady growth in numbers and popularity. Holstein-Friesian have been bred for centuries in the low countries bordering on the North Sea, especially in Holland. They are also

called North Hollander, Holland, Dutch, and Holstein. The last is the name generally used in this country. The first importations of which records exist were made between 1857 and 1862. With the exception of the Jersey, there are more Holstein cattle in the United States than of any other dairy breed. The island of Jersey, the largest of the Channel Islands is the native home of the Jersey, where the breeders have developed cattle that, in addition to productive ability have uniformity of type and natural beauty, while in America the breeders have developed greater size with less refinement of features. They were first imported about the middle of the last century, and since that time importations have been made practically every year. The breed probably has the largest number and widest distribution of all the dairy breeds in this country.

The Brown Swiss breed originated in the canton of Schwyz in east central Switzerland. The cattle are called variously Brown Switzer, Brown Schwyzer and Brown Swiss, the last name being the one commonly used in the United States. They were first imported in 1869, and are found principally in New York and Wisconsin.

Working Oxen.

In the early days oxen were largely employed in farming operations. In 1860 they numbered upward of 26,000, but the number declined rapidly during the next ten years, and after 1890 they dwindled away.

Asses and Burros.

In 1832, Henry Clay, who was a great advocate of the use of mules, brought the first pure-blooded Catalonian jack to Kentucky, and from then until the civil war quite a number of jacks were imported. With the revival of business after the war, there was a great demand for jacks, and they were imported from all the Mediterranean countries.

Until this time there had been but two breeds of asses generally recognized in this country, Maltese and Spanish. The importations into Tennessee and Kentucky have resulted in the production of the native type that is regarded by some breeders as better than any now imported.

There are also a large number of small donkeys, or burros, descendants of the small asses brought into Mexico and New Mexico at the early settlement of that section by the Spaniards, and are used principally by the Spanish and Mexican element. They are most useful in the mountainous sections.

Sheep.

In 1565, Spanish sheep were introduced into Florida, and those in that state today preserve traces of their Spanish origin. In 1773 they were introduced into California, and under the care of the Missions rapidly increased until, in 1825, it was estimated that seventeen of these Missions, extending from San Diego to San Francisco, held an aggregate of 1,003,970 sheep, exclusive of flocks owned by ranchers.

Sheep of which at one time there were very large flocks, have fallen off since the year 1880, when they numbered 4,152,349; in 1910 there were 2,417,477, or a decrease of 1,734,872 since the former year.

The following statement shows at a glance the changes that have taken place in the number of domestic animals during the last sixty years:

Summary of the Number of Domestic Animals, 1850-1910.

Year	Horses and colts	Mules and colts	Cows and calves	Other cattle	Sheep and lambs	Swine
1850 -----	21,719	1,666	4,280	258,379	17,574	2,776
1860 -----	160,610	3,681	205,407	974,735	1,088,002	456,396
1870 -----	192,273	17,533	164,093	467,305	2,768,187	444,617
1880 -----	237,710	28,343	210,078	604,966	5,727,349	*868,419
1890 -----	*455,073	*53,627	317,201	*1,291,217	3,373,036	*594,009
1900 -----	421,293	96,190	307,245	*1,137,379	2,808,509	566,336
1910 -----	468,886	69,761	467,332	1,609,698	2,417,477	766,551

Prior to 1890, asses and burros were included with mules.

*Including estimated number of range animals separately reported.

The principal breeds now are—Fine Wool breeds: Rambouillets, American or Delaine Merinos, Corriedales. Middle Wool breeds: Shropshires, Hampshires, Southdowns, Oxford Down, Cheviots, Dorset Horns and Romney. Long Wool breeds: Lincolns, Cotswold, and Leicesters.

Goats.

The Angora goat, a native of Asia Minor, was introduced into this country in 1849, and has been bred extensively in the United States. It crosses readily with the common goat, and the cross-breed frequently becomes the foundation of a good flock of fleece-bearing animals. The common goat has often been described as the poor man's cow. The Angora goat has been found to be of great service in clearing land of brush and low growths that sheep and cattle will not touch. The meat of the kids is said to be fully equal to the best young lamb, from which it is difficult to distinguish it. Angoras are among the most useful of domestic animals. Their fleeces, called the mohair, furnish material for the manufacture of some of the finest fabrics, their flesh is exceedingly delicate and nutritious, and their milk is richer than that of a cow.

The number of goats of all kinds in 1910 was 138,000, the lead being taken by Tehama County, with 28,000, and Shasta, with 18,000. Lake and Mendocino counties lead in Angora goats, having upward of 5,000 each.

The production of milk goats has for a great many years been an important feature of the live-stock industry in many European countries, but it has never secured a very strong foothold in the United States. In this country the goat has always been an animal of more or less ridicule, as the majority of the people do not realize the possibilities of certain breeds or types that have been bred for many years along definite lines.

In continental Europe milk goats are largely used by families unable to keep a cow, and great benefit is derived from having fresh milk at hand and at a low cost.

During the past several years considerable interest has been manifested in the milk-goat industry in this country. The fact that the milk-goat will supply sufficient milk for the average family and can be kept where it would be impossible to keep a cow is beginning to appeal to many people, especially those living in the small towns and the suburbs of the large cities.

The milk-goat industry is only in its infancy in America. This type of goat is adapted to our country, and the industry should become of greater importance every year. There are many different breeds of milch-goats, but comparatively few of these are represented in California, the largest number being the Toggenburg, Saanen and Anglo-Nubian. A grate variety of crosses and numerous goats of no particular breeding are also found. The Toggenburg is at the present time the most numerous in this state.

Swine.

The swine introduced into the United States by the early colonists were of inferior stock. Between 1818 and 1830, the Chester White was evolved. The Berkshire was introduced from England about 1830, but did not come into general favor until 1870 to 1880. The Poland-China originated in Ohio between 1838 and 1840. Other breeds are Yorkshires and Hampshires. The interest in swine breeding in recent years is illustrated by the dates of first registration of the different swine breeders' associations, which were as follows: American Berkshire, 1875; Standard Poland-China, 1877; Central Poland-China, 1879; American Chester White, 1884; American Essex, 1887; American Duroc-Jersey and Standard White, 1890.

As a result of this interest, swine in this country have attained a high standard, with regard to form, bone, and line of maturity.

There are two distinct types of swine, the lard and the bacon types. Swine of the lard type far outnumber those of the bacon type in the United States. The lard type is preferred by the people in this country, consequently the majority of feeders produce the rapid fattening, heavily fleshed lard type.

The bacon type is not raised extensively in the United States. The production of choice bacon is more general in those countries where the feed of the hog is more varied and where corn is not relied upon as the principal grain for hogs.

The principal breeds of the lard type are the Poland-China, Berkshire, Chester White, Durco-Jersey, and Hampshire.

The principal breeds of the bacon type are the Tamworth and the Large Yorkshire.

Pork constitutes more than one-half of all the meat produced in the United States, and it is the mainstay of the ration of the laboring man and the soldier.

RECOGNIZED BREEDS AND PURE BRED ANIMALS IMPORTED.

(Under an act of Congress, approved August 5, 1909, effective on and after November 11, 1913.)

Name of breed	Horses.	Book of record
Belgian Draft	Studbook des Chevaux de Trait Belges
Clydesdale	Clydesdale Studbook
French Draft	Studbook des Chevaux de Trait Francais
Hackney	Hackney Studbook
Percheron	Studbook Percheron de France
Shetland Pony	Shetland Pony Studbook
Shire	Shire Horse Society Studbook
Suffolk	Suffolk Studbook
Thoroughbred	*Australian Studbook
Thoroughbred	*Studbook Francais Registre des Chevaux de Pur Sang
Thoroughbred	General Studbook
Welsh Pony and Cob	Welsh Pony and Cob Studbook

*Provided that no animal or animals registered in the Australian or in the French thoroughbred studbooks shall be certified as pure bred unless such animal or animals trace in all crosses to animals which are proved to the satisfaction of the department to be of the thoroughbred breed.

Name of breed	Dogs.	Book of record
Belgian (Griffon Bruxellois, Schipperke, Ohien de Berger Belges)		Livre des Origines Saint-Hubert
Fifty-seven recognized breeds		Kennel Club Studbook
Foxhound		Foxhound Kennel Studbook
Greyhound		Greyhound Studbook
Harrier and Beagle		Harrier and Beagle Studbook
Swiss		Schweizerisches Hunde-Stammbuch
German Shepherd		Zuchtbuch für Deutsche Schäferhunde

Provided that no dog or dogs registered in the above-mentioned books shall be certified as pure bred unless a three-generation certificate of pedigree issued by one of the above-mentioned societies is submitted for each dog.

Name of breed	Cats.	Book of record
Long haired and short haired		Register of the
Governing Council of the Cat Fancy, 65-66 Chancery Lane, London, England		

The recognized breeds of cattle, sheep and hogs are as follows:

Cattle.		
Aberdeen-Angus.	Guernsey.	Kerry and Dexter.
Alderney.	Hereford.	Red Polled.
Ayrshire.	Highland.	Shorthorn.
Devon.	Holstein-Friesian.	Sussex.
Galloway.	Jersey.	Welsh.
Sheep.		
Cheviot.	Kerry Hill.	Shropshire.
Cotswold.	Leicester.	Southdown.
Dorset Horn.	Leicester [Border].	Suffolk.
Hampshire Down.	Lincoln.	Wensleydale.
Kent or Romney Marsh.		Oxford Down.
Hogs.		
Berkshire.	Large Black.	Tamworth.
	Yorkshire.	

Recognized Breeds and Books of Record in Canada.

The Canadian National Records are recognized for the following breeds, provided that no animal or animals register in the Canadian National Records shall be certified by the Secretary of Agriculture as pure bred unless such animal or animals trace, in all crosses, to animals which are proved to the satisfaction of the department to be of the same breed and to have been imported from the country in which the breed originated.

Horses.		
Belgian Draft.	Percheron.	Suffolk.
Clydesdale.	Shire.	Thoroughbred.
Hackney.	Standard Bred.	Welsh Pony and Cob.

The Canadian National Records for dogs are recognized for all the breeds registered in said records; provided, that no dog or dogs registered in said records shall be certified as pure bred unless a three-generation certificate of pedigree, issued by the said Canadian National Records, is submitted for each dog.

CLASSIFIED SUMMARY OF DOMESTIC ANIMALS ON FARMS IN 1910.

Description	Number	Value	Average value
Cattle—			
Dairy cows (cows and heifers kept for milk, born before January 1, 1909).....	467,332	\$18,597,328	\$39 79
Other cows (cows and heifers not kept for milk, born before January 1, 1909).....	576,909	14,798,012	25 65
Heifers born in 1909.....	218,480	3,448,595	15 78
Calves born after January 1, 1910.....	267,799	1,883,523	7 03
Steers and bulls born in 1909.....	163,728	2,889,503	17 65
Steers and bulls born before January 1, 1909.....	321,984	9,941,169	30 87
Unclassified cattle.....	60,793	1,226,938	20 18
Totals	2,077,025	\$52,785,068	*\$25 41
Horses and colts—			
Mares, stallions and geldings born before January 1, 1909.....	402,584	\$43,770,557	\$108 72
Colts born in 1909.....	41,927	2,389,191	56 98
Colts born after January 1, 1910.....	23,037	767,648	33 32
Unclassified horses.....	1,338	171,800	128 40
Totals	468,886	\$47,009,196	*\$100 45
Mules and mule colts—			
Mules born before January 1, 1909.....	61,997	\$8,552,021	\$137 94
Mule colts born in 1909.....	4,913	351,667	71 58
Mule colts born after January 1, 1910.....	2,851	112,756	39 55
Totals	69,761	\$9,016,444	*\$129 25
Asses and burros (all ages).....	2,592	\$347,315	*\$133 99
Swine—			
Hogs and pigs born before January 1, 1910.....	482,810	\$4,346,824	\$9 00
Pigs born after January 1, 1910.....	283,741	759,979	2 68
Totals	766,551	\$5,106,803	*\$6 66
Sheep and lambs—			
Ewes born before January 1, 1910.....	1,217,515	\$4,914,783	\$4 04
Rams and wethers born before January 1, 1910.....	307,773	1,326,699	4 31
Lambs born after January 1, 1910.....	892,189	2,107,515	*2 36
Totals	2,417,477	\$8,348,997	*\$3 45
Goats and kids (all ages).....	138,413	\$320,829	*\$2 32
Grand total		\$123,024,652	

*Average.

Sheep and Wool, Goats and Mohair in 1909-1910.

According to the Census Bureau, the total number of sheep of shearing age in California on April 15, 1910, was 1,525,000, representing a decrease of 11.6 per cent as compared with the number in 1900. The approximate production of wool during 1909 was 2,563,000 fleeces, weighing 14,065,000 pounds and valued at \$2,424,000.

Although 1,714 farmers reported 138,413 goats and kids on their farms in 1910, only 367 reported the production of goat hair or mohair during 1909. These farmers reported 102,134 fleeces, weighing 282,596 pounds and valued at \$60,821. The production shows a considerable increase between 1899 and 1909, but it is believed that the figures are somewhat short of the actual production.

Goat Hair and Mohair 1909 and 1899. Although 1,714 farmers reported 138,413 goats and kids on their farms April 15, 1910, only 367 reported the production of goat hair or mohair during 1909. These farmers reported 102,134 fleeces, weighing 282,596 pounds and valued at \$60,821. The production showed a considerable increase between 1899 and 1909. Many farmers who have goats do not produce goat hair or mohair, but it is believed that the report is somewhat short of the actual production.

Under the encouragement of a 15 per cent duty the production of mohair has probably increased, especially in Texas. The total production in the United States for 1917, is estimated at 6,000,000 pounds, which is the same as in recent years. Texas, Oregon, New Mexico, California, and Arizona are the principal sources of supply of domestic mohair.

***WOOL, 1914-1917.**

The following estimates are taken from the annual report of the National Association of Wool Manufacturers, Boston:

	1914	1915	1916	1917
Number of fleeces.....	*1,852,000	1,900,000	1,850,000	1,740,000
Average weight of fleeces, pounds.....	6.2	6.1	6.3	7.0
Per cent of shrinkage.....	65	64	64	64
Wool product, raw, pounds.....	11,480,000	11,590,000	11,600,000	12,180,000
Equivalent quantity of scoured wool, pounds.....	4,100,800	4,172,000	4,176,000	4,384,000
Average value per scoured pound				
October 1st.....	\$0.54	\$0.65	\$0.83	\$1.50
Total value October 1st.....	\$2,214,432	\$2,711,800	\$3,466,080	\$6,576,000

*Number of fleeces.

The comparative prices of California wool at Boston has been as follows on the scoured basis, per pound:

***PRICES OF WOOL (OCT.), 1905-1917.**

Year	Cents*		Year	Cents*	
	Spring	Fall		Spring	Fall
1905.....	74	62	1912.....	54	45
1906.....	70	60	1913.....	48	40
1907.....	68	58	1914.....	53	45
1908.....	50	40	1915.....	65	55
1909.....	70	53	1916.....	80	57
1910.....	55	45	1917.....	\$1.75	\$1.40
1911.....	48	40			

*67 per cent spring, 33 per cent fall.

CALIFORNIA WOOL PRODUCTION, 1905-1917.†

(Commercial estimates. Duty—Free on and after December, 1913.)

Year	Pounds	Year	Pounds
1905 -----	22,000,000	1912 -----	11,900,000
1906 -----	24,000,000	1913 -----	11,200,000
1907 -----	15,750,000	1914 -----	11,480,000
1908 -----	14,580,000	1915 -----	11,590,000
1909 -----	15,000,000	1916 -----	11,600,000
1910 -----	13,500,000	1917 -----	12,180,000
1911 -----	12,000,000		

†For the California wool production from 1854-1903, see Report for 1913, page 67. The imports of wool are given under so many classifications of camel, goat, alpaca, etc., unmanufactured and manufactured, that space will not allow the details to be given here

NUMBER AND VALUE OF FARM ANIMALS IN CALIFORNIA, 1877-1917; IMPORTS AND EXPORTS 1907-1917.

NOTE.—The imports and exports for animals is for the fiscal year ending June 30. (Compiled from the reports of the United States Department of Agriculture.)

HORSES, 1877-1917.

Year	Number, Dec. 31	Average farm price, Dec. 31	Farm value, Dec. 31	Year	Number, Dec. 31	Average farm price, Dec. 31	Farm value, Dec. 31
1877	260,000	\$39 50	\$10,270,000	1898	417,396	\$28 96	\$12,085,909
1878	262,000	40 94	10,750,844	1899	342,265	27 54	9,426,483
1879	273,000	43 95	11,998,350	1900	321,729	38 61	12,422,429
1880	273,000	46 18	12,673,500	1901	363,982	49 66	18,074,805
1881	281,990	45 03	12,698,010	1902	353,063	56 28	19,869,542
1882	240,087	47 30	11,356,115	1903	370,716	60 66	22,485,881
1883	240,567	54 89	13,204,723	1904	367,000	65 66	24,099,139
1884	252,595	61 33	15,491,651	1905	363,339	67 48	24,518,741
1885	265,225	62 05	16,457,211	1906	399,673	76 32	30,505,037
1886	275,834	63 00	17,377,452	1907	391,680	92 00	36,120,721
1887	289,626	64 00	18,534,948	1908	396,000	94 00	37,224,000
1888	307,004	71 00	21,797,255	1909	412,000	90 00	37,080,000
1889	368,400	70 19	25,857,259	1910	483,000	105 00	49,245,000
1890	372,084	63 60	23,664,984	1911	493,000	117 00	57,681,000
1891	360,921	67 22	24,262,579	1912	503,000	109 00	54,827,000
1892	415,059	62 67	26,010,045	1913	498,000	100 00	49,800,000
1893	518,824	57 48	29,821,982	1914	503,000	100 00	50,300,000
1894	513,636	41 98	21,562,949	1915	493,000	96 00	47,378,000
1895	513,636	31 94	16,404,965	1916	468,000	97 00	45,396,000
1896	482,818	27 16	13,114,254	1917	468,000	98 00	45,864,000
1897	439,364	27 40	12,037,918				

Horses Imported, 1907-1917.

Year	For breeding purposes*		Other horses		Total horses	
	Number	Value	Number	Value	Number	Value
1907	3,644	\$1,574,020	2,436	\$404,085	6,080	\$1,978,105
1908	3,562	1,325,784	1,925	278,608	5,487	1,604,392
1909	4,953	1,658,640	2,131	348,636	7,084	2,007,276
1910	7,867	2,660,241	3,753	635,781	11,620	3,296,022
1911	6,331	2,055,418	3,662	636,656	9,993	2,692,074
1912	3,849	1,579,377	2,758	343,648	6,607	1,923,025
1913	5,713	1,653,713	4,295	472,162	10,008	2,125,875
1914	4,406	1,476,905	28,613	1,128,124	33,019	2,605,029
1915	1,849	473,138	10,803	504,242	12,652	977,380
1916	1,536	659,022	14,020	959,223	15,556	1,618,245
1917	2,684	1,056,033	9,990	832,270	12,584	1,888,303

*Including teams of immigrants.

Horses Exported, 1907-1917.

Year	Number	Value	Year	Number	Value
1907	33,882	\$4,359,957	1913	28,707	\$3,960,102
1908	19,000	2,612,587	1914	22,776	3,888,819
1909	21,616	3,386,617	1915	289,940	64,046,584
1910	28,910	4,081,157	1916	357,553	73,531,146
1911	25,145	3,845,253	1917	278,674	59,525,329
1912	34,828	4,764,815			

Duty on Imported Horses.—For breeding purposes and pure bred and teams of immigrants, free. All others 10 per cent ad valorem on October 4, 1913, and after.

Certificated Horses Imported, 1914-1917.

The following table shows the number of certificated horses imported for breeding purposes during the calendar year ending December 31, 1914-1917, for which certificates of pure breeding have been issued by the Bureau of Animal Industry of the United States Department of Agriculture. Owing to the war the numbers show a considerable decrease compared with 1914.

Breeds	1914			1915		
	Stallions	Mares	Total	Stallions	Mares	Total
Belgian draft	234	157	391	4		4
Clydesdale	17	34	51	20	21	41
Hackney	4	20	24	4	19	23
Percheron	343	181	524	9		9
Shetland pony	2	22	24			
Shire	54	14	68	30	14	44
Shetland pony	2	22	24			
Standard bred				8	4	12
Suffolk	11	19	30		1	1
Thoroughbred	37	13	50	86	86	172
Welsh pony	11	49	60	1		1
Totals	715	511	1,226	162	145	306

	1916			1917		
	Stallions	Mares	Total	Stallions	Mares	Total
Belgian Draft	1		1			
Clydesdale	13	19	32	7	15	22
Hackney	7	36	43	6	25	31
Percheron	89	5	94	62		62
Shetland pony						
Shire	20	16	36		12	12
Standard bred	4	5	9	1	2	3
Suffolk	4	12	16	1		1
Thoroughbred	280	235	515	193	283	476
Welsh pony	1		1		4	4
Totals	419	328	747	270	341	611

NOTE.—For full details regarding the number and different breeds of stallions in the state, see the Report of the California Stallion Registration Board. For further information relating to Working Oxen, Sheep and Goats, see the Statistical Report of the State Board of Agriculture for 1913.

MULES, 1877-1917.

Year	Number. Dec. 31	Average farm price, Dec. 31	Farm value, Dec. 31	Year	Number. Dec. 31	Average farm price, Dec. 31	Farm value, Dec. 31
1877	26,500	\$67 75	\$1,795,375	1898	56,898	\$38 33	\$2,180,836
1878	25,000	68 98	1,752,092	1899	52,915	34 15	1,807,174
1879	25,700	66 24	1,702,368	1900	48,682	48 49	2,300,713
1880	25,700	67 54	1,735,778	1901	77,452	60 44	4,681,555
1881	25,700	68 79	1,767,903	1902	72,030	69 23	4,986,745
1882	28,910	69 20	2,000,572	1903	67,708	72 02	4,876,600
1883	30,066	70 98	2,134,085	1904	67,031	72 68	4,871,487
1884	29,765	80 18	2,386,558	1905	66,361	76 39	5,069,044
1885	31,551	84 30	2,659,749	1906	69,679	91 30	6,361,689
1886	31,551	77 65	2,450,081	1907	80,750	106 00	8,599,875
1887	36,284	83 67	3,035,912	1908	82,000	113 00	9,266,000
1888	38,824	85 03	3,301,389	1909	83,000	107 00	8,881,000
1889	40,765	83 78	3,415,201	1910	71,000	122 00	8,540,000
1890	42,803	78 21	3,347,496	1911	72,000	136 00	9,792,000
1891	43,659	79 41	3,467,098	1912	73,000	130 00	9,490,000
1892	54,574	74 72	4,077,548	1913	73,000	120 00	8,760,000
1893	60,031	67 90	4,076,130	1914	74,000	120 00	8,880,000
1894	63,033	56 38	3,553,899	1915	70,000	110 00	7,700,000
1895	63,033	46 25	2,915,041	1916	70,000	116 00	8,120,000
1896	59,251	35 02	2,074,789	1917	66,000	115 00	7,590,000
1897	57,473	36 89	2,120,329				

Mules Imported.

(Included in "All Other" Animals.)

Mules Exported, 1907-1917.

Year	Number	Value	Year	Number	Value
1907	6,781	\$850,901	1913	4,744	\$733,795
1908	6,609	990,667	1914	4,883	690,971
1909	3,432	472,017	1915	65,788	12,728,143
1910	4,512	614,094	1916	111,915	22,960,312
1911	6,585	1,070,051	1917	136,689	27,800,854
1912	4,901	732,095			

Duty on Imported Mules.—Teams of immigrants, free. All others, 10 per cent ad valorem on October 4, 1913, and after.

MILCH COWS, 1877-1917.

Year	Number, Dec. 31	Average farm price, Dec. 31	Farm value, Dec. 31	Year	Number, Dec. 31	Average farm price, Dec. 31	Farm value, Dec. 31
1877	381,900	\$30 64	\$11,701,416	1898	342,392	\$28 65	\$9,809,531
1878	389,500	28 23	10,955,585	1899	318,425	28 00	8,915,900
1879	459,600	25 90	11,903,640	1900	308,872	33 75	10,424,430
1880	473,400	28 65	13,562,910	1901	321,227	37 10	11,917,522
1881	473,400	31 67	14,992,578	1902	327,652	40 05	13,122,463
1882	214,280	32 70	7,006,966	1903	337,482	40 43	13,664,397
1883	214,280	36 17	7,750,508	1904	344,232	38 55	13,270,141
1884	220,708	38 00	8,386,904	1905	354,559	36 57	12,966,223
1885	231,743	38 50	8,922,106	1906	390,015	34 65	13,514,020
1886	236,378	38 75	9,159,648	1907	405,616	35 00	14,196,569
1887	243,469	33 22	8,088,040	1908	410,000	36 00	14,760,000
1888	250,773	33 00	8,275,509	1909	430,000	36 00	15,480,000
1889	258,296	31 38	8,105,328	1910	495,000	38 40	17,933,000
1890	268,628	27 75	7,454,427	1911	505,000	53 00	26,765,000
1891	282,059	29 00	8,179,711	1912	510,000	53 50	27,285,000
1892	290,521	26 95	7,829,541	1913	515,000	62 00	31,930,000
1893	299,237	27 25	8,154,209	1914	541,000	72 00	38,952,000
1894	329,161	25 82	8,498,937	1915	568,000	69 00	39,192,000
1895	339,036	23 78	8,062,276	1916	591,000	67 00	39,597,000
1896	335,646	23 75	7,971,593	1917	597,000	72 50	43,282,000
1897	339,002	25 57	8,668,281				

OTHER CATTLE, 1877-1917.

Year	Number, Dec. 31	Average farm price, Dec. 31	Farm value, Dec. 31	Year	Number, Dec. 31	Average farm price, Dec. 31	Farm value, Dec. 31
1877	1,053,500	\$16 52	\$17,403,820	1898	810,615	\$18 91	\$15,328,334
1878	1,600,800	17 23	17,243,784	1899	664,704	18 01	11,970,981
1879	1,010,000	18 91	19,099,100	1900	604,881	24 57	14,864,947
1880	999,900	18 47	18,468,153	1901	1,048,046	22 25	23,315,670
1881	999,900	20 35	20,347,965	1902	1,089,968	23 48	25,593,770
1882	422,433	21 77	9,196,366	1903	1,111,767	24 51	27,244,079
1882	575,000	27 48	15,801,000	1904	1,089,532	21 98	23,944,214
1884	609,500	29 15	17,766,925	1905	1,122,218	19 29	21,648,258
1885	615,595	30 38	18,701,776	1906	1,167,107	17 52	20,453,549
1886	627,907	28 66	17,994,559	1907	1,167,107	18 00	21,474,767
1887	659,302	20 64	13,607,595	1908	1,155,000	19 00	21,945,000
1888	692,267	20 50	14,194,447	1909	1,155,000	17 50	20,212,000
1889	726,880	19 37	14,080,181	1910	1,546,000	20 10	32,361,000
1890	697,805	16 80	11,719,707	1911	1,515,000	26 70	40,450,000
1891	558,244	17 73	9,895,321	1912	1,454,000	29 20	42,457,000
1892	602,904	17 39	10,481,663	1913	1,410,000	33 00	46,530,000
1893	916,414	17 12	15,690,840	1914	1,480,000	39 30	58,164,000
1894	925,578	16 17	14,962,157	1915	1,558,000	36 30	56,555,000
1895	916,322	15 28	14,003,785	1916	1,636,000	38 10	62,332,000
1896	888,832	15 82	14,057,319	1917	1,701,000	42 10	71,612,000
1897	853,279	16 93	14,448,828				

Cattle Imported, 1907-1917.

Year	For breeding purposes*		Other cattle		Total cattle	
	Number	Value	Number	Value	Number	Value
1907	835	\$122,230	31,567	\$442,892	32,402	\$565,122
1908	3,188	149,142	89,168	1,358,168	92,356	1,507,310
1909	3,049	140,713	136,135	1,858,709	139,184	1,999,422
1910	2,611	291,139	193,327	2,708,685	195,138	2,999,824
1911	2,441	362,220	180,482	2,590,857	182,923	2,953,077
1912	2,129	305,222	316,243	4,500,352	318,372	4,805,574
1913	1,388	234,489	420,261	6,406,179	421,649	6,640,668
1914	718,352	16,328,819	150,016	2,367,899	868,368	18,696,718
1915	538,167	17,513,175			538,167	17,513,175
1916	439,185	15,187,593			439,185	15,187,593
1917	374,826	13,021,259			374,826	13,021,259

*Including teams of immigrants.

Cattle Exported, 1907-1917.

Year	Number	Value	Year	Number	Value
1907	423,051	\$34,577,392	1913	24,714	\$1,177,199
1908	349,210	29,339,134	1914	18,376	647,288
1909	207,542	18,046,976	1915	5,484	702,847
1910	139,430	12,200,154	1916	21,287	2,378,248
1911	150,100	13,163,920	1917	13,387	949,503
1912	105,506	8,870,075			

Duty on Imported Cattle.—Free October 4, 1913, and after.

SHEEP, 1877-1917.

Year	Number, Dec. 31	Average farm price, Dec. 31	Farm value, Dec. 31	Year	Number, Dec. 31	Average farm price, Dec. 31	Farm value, Dec. 31
1877	7,290,000	\$1 40	\$10,206,000	1898	2,589,935	2 23	\$5,785,915
1878	6,561,000	1 52	9,972,720	1899	2,175,545	2 64	5,742,352
1879	6,889,000	1 61	11,091,290	1900	2,001,501	2 85	5,710,282
1880	7,646,800	1 62	12,387,816	1901	2,342,923	3 00	7,033,221
1881	7,493,864	1 70	12,739,569	1902	2,319,494	2 90	6,729,085
1882	6,352,344	1 65	10,481,368	1903	2,365,884	2 92	6,915,716
1883	5,907,680	2 02	11,933,514	1904	2,271,249	2 75	6,237,758
1884	6,203,064	1 90	11,785,822	1905	2,180,399	2 67	5,824,718
1885	5,892,911	1 89	11,137,607	1906	2,398,439	3 03	7,273,266
1886	6,069,698	1 81	10,961,268	1907	2,422,423	3 30	8,006,107
1887	6,069,698	1 77	10,728,192	1908	2,422,000	3 47	8,404,000
1888	5,462,728	1 88	10,291,779	1909	2,325,000	2 80	6,510,000
1889	3,956,000	1 88	7,453,104	1910	2,683,000	3 30	9,694,000
1890	4,035,120	2 08	8,409,190	1911	2,656,000	3 60	9,562,000
1891	3,712,310	2 20	8,157,801	1912	2,603,000	3 70	9,631,000
1892	4,083,541	2 42	9,884,211	1913	2,551,000	3 80	9,694,000
1893	4,124,376	2 32	9,559,479	1914	2,500,000	4 50	11,250,000
1894	3,918,157	1 81	7,074,625	1915	2,450,000	5 00	12,250,000
1895	3,526,341	1 65	5,817,052	1916	2,524,000	6 70	16,911,000
1896	2,962,126	1 85	5,483,784	1917	2,776,000	11 30	31,369,000
1897	2,577,050	1 86	4,800,787				

Sheep Imported, 1907-1917.

Year	For breeding purposes		Other sheep		Total sheep	
	Number	Value	Number	Value	Number	Value
1907	3,081	\$67,555	221,717	\$1,052,870	224,798	\$1,120,425
1908	5,609	104,509	219,156	978,097	224,765	1,082,606
1909	4,860	89,272	97,803	413,368	102,663	502,640
1910	6,335	135,019	119,817	561,860	126,152	696,879
1911	5,341	116,277	48,114	261,348	53,455	377,625
1912	2,208	29,106	21,380	128,151	23,588	157,257
1913	388	8,903	15,040	81,118	15,428	90,021
1914	221,836	516,912	1,883	15,492	532,404	223,719
1915	153,317	533,967			153,317	533,967
1916	235,659	917,502			235,659	917,502
1917	160,422	856,645			160,422	856,645

Export of Domestic Sheep, 1907-1917.

Year	Number	Value	Year	Number	Value
1907	135,344	\$750,242	1913	187,132	\$605,725
1908	101,000	589,285	1914	152,600	534,543
1909	67,656	365,155	1915	47,213	182,278
1910	44,517	209,000	1916	52,278	231,585
1911	121,491	636,272	1917	58,752	367,477
1912	157,263	626,985			

Duty on Imported Sheep.—Free October 4, 1913, and after.

SWINE, 1877-1917.

Year	Number, Dec. 31	Average farm price, Dec. 31	Farm value, Dec. 31	Year	Number, Dec. 31	Average farm price, Dec. 31	Farm value, Dec. 31
1877	417,700	\$6 20	\$2,589,740	1898	467,676	\$4 08	\$1,906,247
1878	438,500	6 27	2,749,395	1899	374,141	4 47	1,673,907
1879	565,000	5 95	3,361,750	1900	329,244	6 26	2,061,068
1880	661,000	3 97	2,624,170	1901	521,906	6 61	3,449,172
1881	667,600	4 98	3,324,648	1902	506,249	6 79	3,439,457
1882	585,443	6 20	3,629,747	1903	511,311	7 63	3,901,303
1883	856,000	7 14	6,111,840	1904	526,650	6 55	3,449,558
1884	950,160	5 66	5,377,906	1905	521,384	6 10	3,180,442
1885	978,665	5 80	5,676,257	1906	573,522	5 45	3,125,695
1886	1,027,598	4 15	4,266,586	1907	550,581	7 10	3,909,125
1887	1,017,322	3 78	3,841,409	1908	551,000	7 20	3,967,000
1888	1,047,842	4 62	4,836,000	1909	562,000	6 50	3,653,000
1889	647,000	5 59	3,616,213	1910	790,000	8 20	6,289,000
1890	647,000	4 91	3,175,476	1911	830,000	8 30	6,289,000
1891	517,600	5 26	2,723,611	1912	822,000	9 20	7,562,000
1892	512,424	5 35	2,741,675	1913	797,000	10 50	8,368,000
1893	399,691	6 12	2,446,110	1914	877,000	10 50	9,208,000
1894	435,663	5 57	2,427,342	1915	947,000	8 40	7,955,000
1895	487,943	5 54	2,702,812	1916	994,000	10 10	10,039,000
1896	507,461	4 03	2,045,677	1917	974,000	17 50	17,045,000
1897	487,163	4 13	2,013,738				

***Swine Exported, 1907-1917.**

Year	Number	Value	Year	Number	Value
1907 -----	24,262	\$309,440	1913 -----	15,332	\$151,747
1908 -----	30,818	307,202	1914 -----	10,122	133,751
1909 -----	18,655	144,605	1915 -----	7,779	93,067
1910 -----	4,410	46,955	1916 -----	22,048	238,718
1911 -----	8,551	74,062	1917 -----	21,936	347,951
1912 -----	19,038	159,370			

Duty on Imported Swine.—Free October 4, 1913, and after.

*Swine imported are not given separately, but included under "All Other" animals.

TABLE XV.
Horses, Mules and Colts, by Counties, 1910.

Counties	Mature horses	Yearling colts	Spring colts	Total	Mature mules	Yearling colts	Spring colts	Total
Alameda	9,266	842	536	10,644	223	4		227
Alpine	376	38	12	426	18			18
Amador	2,291	218	176	2,685	212	10	17	239
Butte	6,608	645	402	7,655	1,719	151	91	1,961
Calaveras	3,143	302	203	3,648	25	13	25	63
Colusa	3,992	481	259	4,732	4,607	437	247	5,291
Contra Costa	9,494	1,095	644	11,233	564	63	24	651
Del Norte	382	45	14	441	3			3
El Dorado	2,274	180	90	2,544	93	9	10	112
Fresno	22,063	1,899	1,047	25,009	3,498	298	183	3,979
Glenn	3,319	339	262	3,946	3,033	207	122	3,362
Humboldt	5,851	421	131	6,403	189			189
Imperial	6,277	580	372	7,229	1,583	69	20	1,672
Inyo	4,074	555	403	5,032	249	55	33	337
Kern	8,670	987	530	10,347	1,099	103	46	1,248
Kings	9,417	1,174	882	11,473	855	142	72	1,069
Lake	2,172	216	104	2,492	182	45	36	263
Lassen	7,548	1,406	561	9,515	414	185	103	702
Los Angeles	20,375	1,376	673	22,424	2,459	76	35	2,570
Madera	3,498	334	238	4,070	2,928	154	59	3,141
Marin	2,338	166	54	2,558	11			11
Mariposa	1,896	218	126	2,240	201	46	49	296
Mendocino	5,300	510	184	5,994	298	10	1	309
Merced	10,308	1,453	795	12,556	3,673	198	204	4,075
Modoc	12,247	2,212	976	*15,636	565	441	126	1,132
Mono	1,655	310	132	2,097	73	46	17	136
Monterey	14,172	1,993	1,268	*17,444	546	66	30	642
Napa	5,145	528	237	5,910	345	18	9	372
Nevada	1,830	124	70	*2,074	57	11		68
Orange	9,580	760	225	10,565	2,223	38	7	2,268
Placer	3,762	294	137	4,193	459	12	26	498
Plumas	1,770	206	68	2,044	41	2		43
Riverside	8,969	943	403	10,315	1,303	87	43	1,429
Sacramento	8,770	773	426	9,969	703	37	10	743
San Benito	6,921	955	599	8,475	74	17	3	76
San Bernardino	6,339	372	167	6,878	757	18	3	778
San Diego	9,663	1,130	705	11,498	683	60	23	766
San Francisco	318		1	319				
San Joaquin	18,256	1,597	1,089	*20,972	3,169	217	144	3,530
San Luis Obispo	12,601	1,686	987	15,274	754	83	40	877
San Mateo	3,940	253	102	4,295	10	2		12
Santa Barbara	10,621	1,442	971	13,034	362	56	25	443
Santa Clara	14,405	899	512	15,816	267	7		274
Santa Cruz	3,914	260	116	4,290	84	4		88
Shasta	4,516	488	213	5,217	224	57	13	294
Sierra	1,199	155	40	1,394	20			20
Slaskiyou	7,690	1,037	423	9,150	390	76	37	503
Solano	6,993	695	362	8,050	2,157	84	78	2,319
Sonoma	12,611	739	384	13,728	388	8	2	398
Stanislaus	11,818	1,120	619	*14,573	5,032	236	174	5,442
Sutter	4,869	587	228	5,684	1,922	107	67	2,096
Tehama	5,073	525	278	5,876	1,409	163	103	1,675
Trinity	1,150	117	39	1,306	142	19	7	168
Tulare	18,917	2,003	1,250	*22,200	3,149	288	218	3,655
Tuolumne	2,053	242	196	2,491	76	7	8	91
Ventura	9,955	906	589	*11,480	2,250	66	46	2,362
Yolo	7,127	814	374	8,315	3,501	265	189	3,955
Yuba	2,808	288	153	3,244	726	48	26	800
Totals	402,584	41,927	23,037	*468,866	61,997	4,913	2,851	69,761

*Includes animals, age or sex not specified.

TABLE XVI.
Cattle by Counties in 1910.

Counties	Dairy cows	Other cows	Yearling heifers	Calves	Yearling steers and bulls	Other steers and bulls	Total
Alameda	9,172	5,827	2,609	4,113	1,107	1,491	*24,319
Alpine	759	661	485	426	400	23	2,754
Amador	2,747	7,985	2,175	3,444	1,970	3,945	22,266
Butte	4,713	8,359	2,605	3,772	2,109	4,660	*26,584
Calaveras	1,824	8,407	2,432	3,355	2,057	2,902	20,977
Colusa	3,128	6,571	2,140	2,606	1,556	2,619	*18,750
Contra Costa	9,469	6,567	3,240	4,479	1,123	1,651	26,529
Del Norte	3,575	620	849	1,306	273	234	6,857
El Dorado	2,823	4,338	1,683	2,154	1,138	912	13,048
Fresno	22,241	42,001	13,117	12,682	15,354	22,230	127,625
Glenn	3,688	3,601	1,410	2,409	1,925	2,051	*16,214
Humboldt	21,572	7,837	5,531	8,334	3,413	6,590	*53,775
Imperial	9,653	2,728	2,560	2,772	1,379	1,817	*22,741
Inyo	2,267	8,970	2,583	2,255	2,445	1,788	20,308
Kern	6,917	38,101	8,441	7,372	6,459	24,271	*118,320
Kings	18,593	21,655	7,281	8,793	3,745	14,908	74,975
Lake	1,487	2,113	821	1,133	574	1,286	7,414
Lassen	2,890	18,444	5,975	4,906	5,456	6,161	43,832
Los Angeles	20,524	8,027	5,561	5,211	1,666	1,106	45,085
Madera	1,592	12,406	2,425	2,975	2,252	3,946	*27,905
Marin	24,803	3,564	2,880	6,509	567	641	*39,266
Mariposa	905	7,477	1,602	2,115	1,683	2,876	*16,671
Mendocino	6,454	9,280	3,054	3,960	2,503	4,883	30,154
Merced	19,678	43,250	14,858	14,625	11,036	34,767	*150,467
Modoc	2,903	18,502	6,937	4,608	6,517	7,449	46,916
Mono	450	2,270	803	666	685	427	5,301
Monterey	14,066	27,626	11,046	13,806	7,502	13,133	*88,889
Napa	6,270	3,945	1,403	2,518	758	937	*15,866
Nevada	2,395	2,950	832	1,069	495	865	8,606
Orange	6,184	4,473	2,124	2,231	1,168	2,040	18,220
Placer	2,421	2,283	602	1,204	428	532	*7,510
Plumas	3,437	1,954	1,561	1,586	1,468	1,395	11,401
Riverside	5,235	4,449	2,493	2,203	1,333	3,755	19,468
Sacramento	11,979	5,484	3,195	5,568	1,529	1,961	*31,188
San Benito	4,828	11,064	4,459	5,864	4,151	8,987	*39,708
San Bernardino	3,043	4,389	1,075	926	481	2,847	12,761
San Diego	10,633	15,815	7,874	8,068	6,490	9,877	58,777
San Francisco	1,645	10	581	174	75	25	2,510
San Joaquin	11,904	6,861	3,636	4,960	1,937	1,998	31,296
San Luis Obispo	24,193	22,903	10,345	15,635	8,948	33,180	*118,704
San Mateo	8,119	2,305	1,848	2,375	369	272	15,288
Santa Barbara	11,690	23,752	6,891	11,524	8,666	24,578	*87,576
Santa Clara	12,181	12,251	4,449	5,443	3,133	7,552	*46,080
Santa Cruz	4,210	1,811	1,113	1,779	438	749	10,100
Shasta	2,923	15,433	3,678	3,308	3,197	5,580	34,119
Sierra	1,563	2,268	850	874	831	1,401	7,787
Siskiyou	7,018	14,781	5,965	4,919	5,359	6,513	*45,079
Solano	9,279	4,257	1,933	3,720	1,187	1,408	21,784
Sonoma	24,961	5,835	4,804	9,517	1,805	1,705	*48,727
Stanislaus	20,678	9,047	5,294	7,252	2,922	3,765	*49,132
Sutter	6,728	3,254	1,939	2,623	1,012	823	*16,604
Tehama	3,462	10,691	2,646	3,520	2,590	2,400	25,209
Trinity	804	5,143	1,415	1,126	1,308	2,089	11,885
Tulare	26,765	29,478	11,911	16,092	8,784	10,429	*104,484
Tuolumne	1,773	8,415	2,040	2,977	1,531	1,223	*18,659
Ventura	2,666	5,887	2,139	2,442	2,095	10,850	*29,929
Yolo	7,197	3,761	2,654	2,649	1,194	1,522	18,977
Yuba	2,255	4,773	1,628	1,827	1,152	1,959	13,594
Totals	467,332	576,909	218,480	267,799	163,728	321,984	2,077,025

*Includes animals, age or sex not specified.

TABLE XVII.
 Sheep, Lambs, and Swine, by Counties, 1910.

Counties	Rams, ewes and wethers	Spring lambs	Total	Mature hogs	Spring pigs	Total
Alameda	5,680	3,507	9,187	3,640	2,770	6,410
Alpine	9,832	6,808	16,640	309	208	517
Amador	3,919	2,726	6,645	3,623	1,673	5,296
Butte	29,137	15,940	45,077	9,317	5,016	14,333
Calaveras	10,145	5,215	15,360	2,588	1,586	4,174
Colusa	39,801	24,791	64,592	17,646	10,418	28,064
Contra Costa	14,132	5,463	19,595	3,887	3,054	6,941
Del Norte	1,341	500	1,841	1,153	617	1,770
El Dorado	1,763	1,399	3,162	1,428	973	2,401
Fresno	94,757	47,254	142,011	20,134	13,016	33,150
Glenn	70,210	41,153	111,363	12,483	5,827	18,310
Humboldt	62,423	24,650	87,073	7,688	4,945	12,633
Imperial	13,786	9,553	23,339	45,764	24,798	70,562
Inyo	17,240	26,106	43,346	1,795	1,560	3,355
Kern	19,801	10,516	30,317	13,376	7,137	20,513
Kings	40,483	21,891	62,374	22,775	17,858	40,633
Lake	7,436	3,511	10,947	5,301	2,737	8,038
Lassen	42,490	30,225	72,725	3,079	1,955	5,034
Los Angeles	22,261	8,830	31,091	18,418	10,524	28,942
Madera	6,269	3,837	10,106	4,444	2,409	6,853
Marin	1,980	1,025	2,955	8,812	7,287	16,099
Mariposa	877	304	1,181	6,160	2,722	8,882
Mendocino	88,760	41,010	129,770	14,600	7,469	22,069
Merced	28,044	11,724	39,768	19,414	10,121	29,535
Modoc	46,078	30,484	76,562	5,328	3,160	8,488
Mono	40,805	22,241	63,046	179	244	423
Monterey	17,029	11,845	28,874	12,567	7,464	20,031
Napa	5,794	5,084	10,878	5,160	3,184	8,344
Nevada	6,853	4,309	11,162	1,067	749	1,816
Orange	31,802	11,876	43,678	2,265	2,183	4,448
Placer	15,142	9,326	24,468	1,822	1,565	3,387
Plumas	845	314	1,159	665	744	1,409
Riverside	5,589	1,420	7,009	3,892	2,258	6,150
Sacramento	25,828	21,129	46,957	6,421	4,034	10,455
San Benito	10,635	4,511	15,146	5,572	2,560	8,132
San Bernardino	7	---	7	2,562	1,187	3,749
San Diego	220	69	289	4,261	3,130	7,391
San Francisco	3	---	3	181	100	281
San Joaquin	14,807	10,012	24,819	13,473	9,981	23,454
San Luis Obispo	54,717	32,236	86,953	11,750	6,118	17,868
San Mateo	767	562	1,329	8,692	3,990	12,682
Santa Barbara	60,205	20,328	80,533	15,113	6,960	22,073
Santa Clara	4,449	5,606	10,055	4,165	3,184	7,349
Santa Cruz	876	703	1,579	2,165	1,509	3,674
Shasta	11,449	5,574	17,023	12,832	5,968	18,800
Sierra	3,005	93	3,098	370	294	664
Siskiyou	18,013	11,909	29,922	6,116	3,396	9,512
Solano	96,921	73,232	170,153	8,836	4,732	13,568
Sonoma	44,095	21,220	65,315	10,995	7,428	18,423
Stanislaus	15,874	7,378	23,252	13,610	9,417	23,027
Sutter	51,135	38,530	89,665	9,121	6,008	15,129
Tehama	185,023	112,713	297,736	10,915	4,025	14,940
Trinity	2,732	1,081	3,813	2,594	1,457	4,051
Tulare	14,014	7,170	21,184	23,942	14,250	38,192
Tuolumne	1,795	671	2,466	2,590	1,303	3,893
Ventura	16,113	15,658	31,771	6,984	3,514	10,498
Yolo	49,807	29,639	79,446	15,483	8,714	24,197
Yuba	40,344	27,318	67,662	3,288	2,251	5,539
Totals	1,525,288	892,189	2,417,477	482,810	283,741	766,551

TABLE XVIII.

Wool Produced by Counties, 1860-1900.
(Compiled from Reports of the Census Bureau.)
(Pounds.)

Counties	1860	1870	1880	1890	1900
Alameda	284,735	138,975	205,955	156,065	148,810
Alpine		281,700	90	2,015	6,480
Amador	20,650	73,010	64,808	53,879	30,385
Butte	92,400	351,023	323,483	307,739	551,590
Calaveras	10,335	129,025	161,351	130,761	120,090
Colusa	66,900	1,086,599	661,782	603,822	113,040
Contra Costa	74,108	58,800	27,293	92,415	20,900
Del Norte		3,471	6,462	7,524	3,520
El Dorado	1,130	50,096	78,233	2,251	960
Fresno		191,594	1,477,000	1,802,043	425,862
Glenn					328,020
Humboldt		51,867	647,492	997,649	948,970
Imperial					
Inyo			35,382	139,252	264,290
Kern		281,100	666,427	1,163,056	792,700
Kings		72			678,630
Lake		58,046	185,418	139,584	41,940
Lassen		75	92,748	152,232	269,180
Los Angeles	209,869	962,603	1,499,895	544,660	244,380
Madera					279,810
Marin	17,820	6,692	2,080	153	2,947
Mariposa		87,816	163,896	225,895	15,290
Mendocino	18,794	178,493	990,264	1,048,020	1,089,490
Merced	28,500	231,072	631,725	984,505	712,310
Modoc			71,378	86,499	810,725
Mono		7,000	350	15,888	176,520
Monterey	485,167	1,054,310	523,612	267,247	56,100
Napa	31,390	20,789	157,085	156,368	17,810
Nevada			8,002	6,816	15,750
Orange				1,110,112	298,620
Placer	31,330	169,033	233,901	439,723	145,810
Plumas		13,023	23,608	5,833	27,290
Riverside					76,650
Sacramento	67,005	515,213	509,834	254,263	227,900
San Benito			323,285	128,247	59,740
San Bernardino	4,000	71,075	250,338	176,100	88,574
San Diego	5,150	9,250	811,308	130,180	91,040
San Francisco					
San Joaquin	36,477	86,700	466,960	111,585	176,160
San Luis Obispo	260,100	903,863	643,853	146,740	77,800
San Mateo	7,535	12,625	2,819	4,040	4,510
Santa Barbara	150,200	996,200	692,415	71,600	509,250
Santa Clara	19,000	179,465	73,024	1,103	15,920
Santa Cruz	24,875	3,100	3,640	3,760	4,410
Shasta		15,820	88,142	68,164	126,900
Sierra			3,625		8,310
Siskiyou	1,150	43,858	135,164	62,024	85,920
Solano	240,937	306,817	290,996	208,385	412,140
Sonoma	78,223	230,394	664,721	547,120	335,010
Stanislaus	38,249	749,263	787,516	176,807	216,990
Sutter	83,062	126,657	152,367	181,489	305,150
Tehama	32,675	445,456	484,763	1,408,818	1,648,750
Trinity			80,115	64,189	62,290
Tulare	16,900	660,645	460,080	1,112,091	855,142
Tuolumne	150	48,525	58,535	39,170	9,930
Ventura			728,932	281,504	10,000
Yolo	146,806	437,018	276,721	280,977	456,870
Yuba	97,487	63,425	194,163	258,155	232,960
Totals	2,683,109	11,391,743	*16,798,036	†16,358,547	18,680,495

*Exclusive of wool obtained from range sheep.

†In a summary issued in 1900, the total wool produced is stated at 24,092,954 pounds.

TABLE XIX.

Goats, Wool, Mohair, and Goat Hair, 1900-1910.
(Compiled from the Reports of the Census Bureau.)

Counties	Number of goats, 1900	Number of goats, 1910	Number of wool fleeces shorn, 1910	Mohair and goat hair fleeces shorn, 1910	Value of wool and mohair pro- duced, 1910
Alameda	66	64	5,783		\$4,930
Alpine		10	6,790		9,561
Amador	1,584	1,597	7,253	449	5,882
Butte	1,562	3,215	98,261	1,749	33,991
Calaveras	1,142	3,348	15,677	517	11,551
Colusa	4,289	2,154	73,221	4,009	56,620
Contra Costa	79	17	14,715		10,869
Del Norte		465	1,238	40	2,070
El Dorado	591	3,315	3,808	933	3,504
Fresno	517	4,558	107,802	1,900	109,982
Glenn	4,571	2,813	131,612	5,177	101,749
Humboldt	920	3,747	85,212	2,540	104,430
Imperial		147	12,755	26	17,067
Inyo	8,382	2,846	17,847	505	27,761
Kern	3,364	930	24,177	355	26,540
Kings	870	507	73,393	26	58,636
Lake	10,512	9,018	10,372	6,603	12,922
Lassen	45	586	36,768	2,088	55,154
Los Angeles	13,580	8,238	31,754	230	82,366
Madera	83	278	4,905	60	2,272
Marin	25	147	2,823		2,816
Mariposa	1,026	931	355	154	376
Mendocino	3,627	3,927	149,260	2,315	158,918
Merced	1,878	5,246	46,908	8,400	39,400
Modoc	1,280	549	39,538	1,356	55,583
Mono	651	25	29,160		41,209
Monterey	3,127	3,983	24,884	3,000	26,549
Napa	632	556	9,955	153	7,196
Nevada	989	2,198	10,607	1,043	8,882
Orange	396	423	62,072		51,474
Placer	945	1,542	28,841	177	21,728
Plumas	23	10	593		767
Riverside	384	924	1,536	13	2,600
Sacramento	67	89	41,103	7	35,449
San Benito	139	489	19,457	33	18,974
San Bernardino	126	81			
San Diego	2,290	1,147	155	60	195
San Francisco	19	9	3		4
San Joaquin	132	260	20,477	37	14,114
San Luis Obispo	1,502	7,390	64,719	4,758	52,868
San Mateo	363	154	1,013	26	1,162
Santa Barbara	1,118	558	27,787	68	26,308
Santa Clara	5,143	163	4,765		3,596
Santa Cruz	1,505	1,043	799	630	1,444
Shasta	8,792	18,403	17,862	11,606	25,705
Sierra	104	73	2,333		3,940
Siskiyou	3,772	384	14,975	134	23,038
Solano	56	392	157,499	3	161,312
Sonoma	1,544	2,991	75,925	2,330	74,951
Stanislaus	159	217	22,837	50	22,700
Sutter	173	511	149,821	800	110,738
Tehama	10,667	28,473	336,373	36,119	349,689
Trinity	108	845	2,603	44	1,892
Tulare	1,190	2,979	33,150	510	35,218
Tuolumne	1,119	1,609	1,408	177	996
Ventura	1,022	621	21,465	400	14,306
Yolo	322	716	82,602	318	76,497
Yuba	298	502	63,383	208	45,777
Indian reservation	151				
Totals	109,021	138,413	2,275,389	102,134	\$2,205,928

TABLE XX

Counties	Domestic animals on farms and				
	Horses and colts	Cattle	Mules and colts	Asses and burros	Swine (all ages)
Alameda	10,644	24,319	227	3	6,410
Alpine	426	2,754	18	14	517
Amador	2,685	22,266	239	23	5,296
Butte	7,655	*26,584	1,961	18	14,333
Calaveras	3,648	20,977	63	27	4,174
Colusa	4,732	*18,750	5,291	65	28,064
Contra Costa	11,233	26,529	651	6	6,941
Del Norte	441	6,857	3	-----	1,770
El Dorado	2,544	13,048	112	17	2,401
Fresno	25,009	127,625	3,979	101	33,150
Glenn	*3,946	*16,214	3,362	29	18,310
Humboldt	6,403	*53,775	189	11	12,638
Imperial	7,229	*22,741	1,672	56	70,562
Inyo	5,032	20,308	337	309	3,355
Kern	*10,347	*118,320	1,248	130	20,513
Kings	11,473	74,975	1,069	23	40,633
Lake	2,492	7,414	263	10	8,088
Lassen	9,515	43,832	702	119	5,034
Los Angeles	22,424	43,095	2,570	84	28,942
Madera	4,070	*27,905	3,141	49	6,853
Marin	2,558	*39,266	11	-----	16,099
Mariposa	2,240	*16,671	296	83	8,882
Mendocino	5,994	30,154	309	29	22,069
Merced	12,556	*150,467	4,075	107	29,535
Modoc	*15,636	46,916	1,132	98	8,488
Mono	2,097	5,301	136	62	423
Monterey	*17,444	*88,889	642	26	20,031
Napa	5,910	*15,866	372	10	8,344
Nevada	*2,074	8,606	68	10	1,816
Orange	10,565	18,220	2,268	25	4,448
Placer	4,193	*7,510	498	66	3,387
Plumas	2,044	11,401	43	5	1,409
Riverside	10,315	19,468	1,429	88	6,150
Sacramento	9,969	*31,188	743	19	10,455
San Benito	8,475	*39,703	96	29	8,132
San Bernardino	6,878	12,761	778	88	3,749
San Diego	11,498	58,777	766	181	7,391
San Francisco	319	2,510	-----	-----	281
San Joaquin	*20,972	31,296	3,530	62	23,454
San Luis Obispo	15,274	*118,704	877	19	17,868
San Mateo	4,295	15,288	12	2	12,682
Santa Barbara	13,034	*87,576	443	24	22,073
Santa Clara	15,816	*46,030	274	11	7,349
Santa Cruz	4,290	10,100	88	6	3,674
Shasta	5,217	34,119	294	23	18,800
Sierra	1,394	7,787	20	4	664
Siskiyou	9,150	*45,079	503	22	9,512
Solano	8,060	21,784	2,319	23	13,568
Sonoma	13,728	*48,727	398	28	18,423
Stanislaus	*14,357	*49,132	5,442	31	23,027
Sutter	5,684	*16,604	2,096	20	15,129
Tehama	5,876	25,309	1,675	23	14,940
Trinity	1,306	11,885	168	8	4,051
Tulare	*22,200	*104,484	3,655	103	38,192
Tuolumne	2,491	*18,659	91	26	3,893
Ventura	*11,480	*29,929	2,362	60	10,498
Yolo	8,315	18,977	3,955	46	24,197
Yuba	3,244	13,594	800	31	5,539
Totals	*468,886	*2,077,025	69,761	2,592	766,551

*Including animals, age or sex not specified.

SUMMARY.

ranges, 1910		Domestic animals in inclosures (not on farms), 1910				
Sheep—rams, ewes, wethers and lambs	Goats	Cattle	Horses	Mules, asses and burros	Swine	Sheep and goats
9,187	64	2,938	11,439	289	429	3,065
16,640	10	7	16	2	5	22
6,645	1,597	308	492	34	56	-----
45,077	3,215	686	1,835	16	201	23
15,360	3,348	1,056	746	22	107	32
64,592	2,154	479	726	291	172	131
19,595	17	726	1,378	48	103	92
1,841	465	75	114	1	1	-----
3,162	3,315	709	473	20	137	-----
142,011	4,558	1,428	4,525	674	341	58
111,363	2,813	313	694	115	43	5
87,073	3,747	1,363	1,549	20	1,132	165
23,339	147	244	1,278	559	878	435
43,346	2,846	315	902	761	140	16,111
30,317	930	820	3,565	1,482	108	7,597
62,374	507	243	1,005	24	124	5
10,947	9,018	365	395	24	193	34
72,725	586	313	743	26	87	18,064
31,091	8,238	7,528	25,297	3,425	807	3,025
10,106	278	155	436	76	30	1
2,955	147	361	1,227	81	1	26
1,181	931	42	256	75	-----	-----
129,770	3,927	808	1,280	27	348	4
39,768	5,246	130	520	30	69	11,028
76,562	549	433	811	21	156	-----
63,016	25	65	170	16	-----	-----
28,874	3,983	505	1,535	112	53	7
10,878	556	251	899	14	38	91
11,162	2,198	799	946	36	350	89
43,678	423	885	1,923	179	90	649
24,468	1,542	1,076	1,442	162	252	78
1,159	10	162	451	14	79	6
7,009	924	1,163	2,815	249	131	2,833
46,957	89	646	3,917	74	164	80
15,146	489	148	407	4	20	-----
7	81	1,671	2,977	757	409	1,324
289	1,147	1,210	3,303	434	15	118
3	9	2,280	21,184	320	1,243	2,924
24,819	260	840	2,405	67	150	84
86,953	7,390	1,144	1,301	18	52	18
1,829	154	913	1,424	23	964	114
80,533	558	1,010	2,801	73	40	61
10,055	163	1,105	5,156	66	125	116
1,579	1,043	536	1,543	66	65	79
17,023	18,408	948	1,274	60	486	529
3,098	73	180	312	55	35	42
29,922	384	745	1,393	130	229	28
170,153	392	579	1,108	19	24	31
65,315	2,991	959	2,166	23	164	27
23,252	217	653	1,454	99	157	3
89,665	511	387	386	19	83	1,903
297,736	28,473	273	568	6	35	12
3,813	845	508	277	48	106	-----
21,184	2,979	831	1,765	137	100	16
2,466	1,609	740	923	108	319	473
31,771	621	576	1,374	93	280	41
79,446	716	371	834	30	195	43
67,662	502	179	386	15	47	2
2,417,477	138,413	46,176	132,521	11,669	12,168	71,744

**RANK OF THE LEADING STATES IN THE NUMBER OF DOMESTIC ANIMALS
ON FARMS AND RANGES IN 1917.**

Horses.

State and rank	Number	Value per head, Dec. 31, 1917	Total value, Dec. 31, 1917
1. Iowa	1,583,000	\$104 00	\$164,632,000
2. Illinois	1,467,000	103 00	151,101,000
3. Texas	1,212,000	77 00	93,324,000
4. Kansas	1,142,000	104 00	118,768,000
5. Nebraska	1,049,000	101 00	105,949,000
United States	21,563,000	104 28	2,248,626,000

Mules.

1. Texas	808,000	\$107 00	\$86,456,000
2. Missouri	367,000	113 00	41,471,000
3. Georgia	334,000	181 00	60,454,000
4. Mississippi	307,000	124 00	38,068,000
5. Alabama	289,000	141 00	40,749,000
United States	4,824,000	128 74	621,064,000

Milch Cows.

1. Wisconsin	1,785,000	\$75 00	\$133,875,000
2. New York	1,524,000	85 00	129,540,000
3. Iowa	1,405,000	76 70	107,764,000
4. Minnesota	1,328,000	70 00	92,960,000
5. Texas	1,128,000	57 50	64,860,000
United States	23,284,000	70 59	1,643,639,000

Other Cattle.

1. Texas	4,680,000	\$34 40	\$160,304,000
2. Iowa	2,919,000	47 90	139,820,000
3. Nebraska	2,803,000	49 30	138,188,000
4. Kansas	2,354,000	49 30	116,052,000
5. Missouri	1,782,000	47 60	84,823,000
United States	43,546,000	40 88	1,780,052,000

Sheep.

1. Wyoming	4,100,000	\$13 60	\$55,760,000
2. Idaho	3,202,000	13 30	42,587,000
3. New Mexico	3,135,000	10 00	31,350,000
4. Ohio	3,091,000	11 60	35,856,000
5. Montana	3,045,000	12 60	38,367,000
United States	48,900,000	11 82	577,864,000

Swine.

1. Iowa	10,307,000	\$24 20	\$249,429,000
2. Illinois	5,111,000	22 00	112,442,000
3. Missouri	4,708,000	18 50	87,098,000
4. Nebraska	4,200,000	24 40	102,480,000
5. Indiana	4,168,000	20 20	84,194,000
United States	71,374,000	19 51	1,392,276,000

PART IV.

POULTRY, DAIRY PRODUCTS, BEES AND HONEY.

Poultry Varieties; Turkeys, Ducks, Geese, Guinea Fowls; Ostriches; Eggs, Cheese and Butter; Bees, Honey and Wax; Butter and Cheese by Counties in 1910; Production, 1850-1910; Condensed Milk 1906-1917; Value of Dairy Products, 1916-1917; Production of Honey, 1902-1917; Bees, Beeswax and Honey by Counties, 1910; Imports and Exports of Honey and Beeswax, 1900-1917.

POULTRY.

"One hundred hens on every farm—one hundred eggs from every hen," is the motto of the United States Department of Agriculture. Meat can be produced from poultry more quickly than from any other source.

With the exception of the turkey, all the different species of poultry now kept on American farms are of European or Asiatic origin. The fowl, or chicken, is unquestionably of Asiatic origin.

VARIETIES.

The chickens of the United States may be divided into the following classes:

The American class includes the—

Plymouth Rock
Wyandotte
Java
American Dominique
Jersey Blue
Rhode Island Red

The Asiatic class—

Brahma
Cochin
Langshans

The Mediterranean class—

Leghorn
Minorca
Andalusian
Spanish
Anconas

The Polish class—

White Crested
Black
Golden
Silver
White and Bearded Golden
Bearded White
Bearded Silver
Buff Laced

The Dutch or Hamburg class—

Hamburgs

Continental—

Silver and Gold Campines

French class—

Houdans
Orevecœurs
La Fleche

Game and Game Bantam class—

Black-breasted Red
Brown Red
Golden and Silver Duckwing
Red Pyle
White, Black, Birchen, Cornish, and
Indian Games
Malays

Bantams other than Game—

Bebrights.
Rose Combed
Booted
White
Cochin
Japanese
Polish

English class

Dorkings
Orpingtons
Red and Speckled Sussex
Red Cornish
Red Caps

Miscellaneous class

Russian
Sumatra
Silky
Sultan
Frizzles
Rumples
Yokohama
Naked Neck

Classified according to their prominent characteristics, they may be divided into four classes. The egg breeds, which are the greatest egg producers, are the Leghorns, Spanish, Minorcas, and Hamburgs.

The meat breeds, whose chief value is as meat producers: Brahma, Cochin, and Langshan. The general utility fowls furnish fair quantities of eggs and meat. The Plymouth Rock and Wyandotte belong to this class.

The fancy breeds are reared chiefly on account of their appearance: the Polish, Games, Bantams, and some miscellaneous breeds are the chief representatives of this class.

For general purposes the Plymouth Rock and Wyandotte are the most popular of all fowls, the Plymouth Rock in particular being in great favor. Hens of the medium-sized breeds—Plymouth Rocks, Wyandottes, Rhode Island Reds and Orpingtons—are best suited to back-yard conditions. Large hens kept in close confinement are likely to get too fat to lay well.

The turkey is an American bird. The wild turkey was once found all along the Atlantic coast, throughout Mexico, Central America, and the great interior plains of North America. The recognized varieties of the domestic turkey are the Bronze, Narragansett, White, Holland, Buff, Slate, Black, and Bourbon Red.

DUCKS.

The six leading varieties are the White Pekin, White Aylesbury, Colored Rouen, Black Cayuga, Colored Muscovy, and White Muscovy.

The most prominent breeds of geese are the Toulouse, African, Embden, Chinese, Wild or Canadian, Egyptian, East India, Gray Call, Buff, Swedish, Crested, and Runner.

The raising of poultry in California is carried on successfully and on a large scale, the center of this industry being at Petaluma, in Sonoma County.

THE OSTRICH INDUSTRY, 1910.*

In January, 1910, there were at least 6,100 breeding or feather-producing ostriches in this country, of which Arizona had 80 per cent, California 17 per cent, Arkansas 2 per cent, the small remainder being in Texas and Florida. There are ostrich farms at Pasadena, Sacramento, and Brawley, in Imperial County.

The question of the nature of the country most favorable for ostriches is largely affected by the kind of vegetation peculiarly suited to the soil, which in turn is undoubtedly affected by the amount of rainfall. Alfalfa pasture makes an ideal run for the birds, furnishing a large percentage of their food; hence a soil which is or can be made suitable for alfalfa is one of the essentials to success in ostrich farming. A dry sandy soil, made suitable by drainage and irrigation for raising alfalfa, has proved best adapted to successful ostrich farming. Such a soil is generally peculiarly adapted for raising large crops of alfalfa, and makes an ideal soil for an alfalfa pasture. Under such conditions it is essential to have some shade.

The demand for information concerning ostriches indicates that the number of individuals who are interested in ostrich farming is rapidly increasing.

The profit to be derived from the business will depend on the management, on the success secured in the raising of the young birds, and on the production of feathers of good quality. The average yearly yield of feathers from an ostrich is $1\frac{1}{2}$ pounds. Birds produce from 12 to 20 ounces of feathers at each plucking, with an average of 16 ounces.

There were nine ostrich farms, returning 974 ostriches, valued at \$224,000. There were also reported peafowls valued at \$1,431, pheasants valued at \$342, and India Jungle fowls valued at \$150. The number of farms reporting poultry increased 10,772 since 1900.

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The South African Ostrich Industry, 1911-1916.

Only four years ago the ostrich was the most pampered and highly valued possession of many South African farmers. Now there is little interest even in the most perfect of these birds.

A pair of the best breeding ostriches easily sold for \$5,000. Super prime feathers (*i. e.*, perfect white wing feathers from the cock bird) brought \$120 to \$140 a pound on the public market in South Africa. Today the best feathers produced could probably be purchased for \$50 or \$60 a pound.

It was in the late sixties that the commercial aspect of the ostrich plume presented itself to the South African farmer. From a very small beginning the business developed into a trade amounting to millions of dollars annually, but met with a check in 1914 and now there is an almost complete cessation of demand for feathers.

Since the slump in the ostrich-feather market occurred in 1914, making it unprofitable to raise ostriches for their feathers alone, schemes have been devised in this country to minimize the losses to ostrich farmers, many of whom had no other capital than their flocks of these giant birds.

The eggs of the ostrich have long been a staple product on the market of Port Elizabeth and other ostrich centers, and have been mixed with hens' eggs by bakers in the manufacture of cakes and pastry.

Numbers 1911-1916.

Provinces	Census of May, 1911	At end of 1913	At end of 1916
Cape of Good Hope.....	728,008	756,923	879,427
Natal.....	4,111	5,081	4,259
Transvaal.....	5,441	4,591	8,927
Orange Free State.....	9,097	9,673	6,397
Totals	746,657	776,268	399,010

Poultry in California, 1880-1910.

	1880	1890	1900	1910	Value, 1910
Chickens	1,425,991	3,504,251	3,947,200	5,665,964	\$3,237,049
Turkeys		287,799	158,356	116,602	258,033
Ducks		157,514	62,293	40,061	28,325
Geese		37,659	28,419	14,195	18,609
Guinea fowls			1	2,920	1,993
Pigeons			1	246,065	69,254
Ostriches			198	1,082	229,340
All other fowls	184,176	482,972	249,068	378	1,923
Totals.....	1,610,167	4,470,195	4,196,466	6,087,267	\$3,844,526

¹Included with chickens. ²Not reported.

*For further details regarding the ostrich industry, see the Statistical Report of the State Board of Agriculture for 1913.

The farm value of poultry and eggs produced in California is about \$18,000,000, according to Mr. George H. Croley, president of the Federated Poultry Association. The leading poultry districts of the state, arranged in order of their importance and value of products, are as follows:

1. Petaluma district, including Santa Rosa and Sebastopol.
2. California south of Tehachapi—eight counties.
3. Hayward-Livermore, including the suburbs of the city of Oakland.
4. Santa Cruz-Watsonville-Salinas.
5. San Jose-Gilroy-Hollister (Santa Clara Valley).
6. Sacramento-Stockton.
7. San Joaquin Valley, excepting that portion included in District No. 6.
8. Sacramento Valley, excepting that portion included in District No. 6.
9. Sonoma-El Verano-Napa.
10. Santa Maria-Arroyo Grande.
11. Martinez-Concord-Walnut Creek (San Ramon Valley).
12. Northwestern Coast District.
13. Northeastern Mountain District.
14. Eastern Mountain District.

The industry is constantly extending, as the demand for poultry products greatly exceeds the home supply. Turkey-farming, as it is called, is mainly in the grain districts where the fowls can range. Hatching by incubators prevails generally.

An average chicken ranch near Petaluma consists of about five acres, upon which are placed 500 to 3,000 hens. There are, of course, quite a number of larger ranches which maintain 5,000 to 30,000 chickens. A person should have from \$3,000 to \$5,000 to equip a chicken ranch and get ready for a profitable business. In case of renting, however, about \$1,500 is needed to start the prospective poultryman. The average profit on each hen is about \$1 per year.

Notwithstanding the remarkable development of the poultry business in various parts of the state, the increase is not sufficient to meet the demands of the immediate market. The rapidly expanding population of the state requires the importation in season of about 425 carloads of live and 75 carloads of dressed poultry to San Francisco and Los Angeles, besides several million dozen eggs each year from Eastern points, and there is no immediate prospect of the home supply overtaking the market. This fact insures the success of all practical poultrymen who engage in the industry in California.

California, in 1917, produced poultry products valued at about \$35,000,000, approximately one-half of which came from this district or Sonoma County. This district's production of eggs was about between twenty-five and thirty million dozens, while the poultry output was about 175,000 dozens. About 20,000 persons are either directly or indirectly employed in this poultry industry in this county. This represents about 40 per cent of the population.

Eggs.*

The production of eggs in California in 1909 was 41,022,000 dozen, valued at \$10,263,000.

Numbers of eggs	Dozens	Value
In 1899 -----	24,443,540	\$3,864,679
In 1909 -----	41,022,395	10,262,694
Increase, 1899 to 1909 -----	16,578,855	6,398,015
Per cent of increase -----	67.8	165.6

*The center of the poultry industry in California is at Petaluma in Sonoma County.

TABLE XXI
Poultry and Eggs, 1909-1910.

Counties	Number of poultry raised in 1909	Number of poultry raised in 1910	Dozens of eggs produced in 1909
Alameda	230,417	240,914	1,391,728
Alpine	2,547	2,159	8,904
Amador	23,628	23,630	142,824
Butte	94,183	74,962	377,598
Calaveras	31,410	23,242	107,387
Colusa	73,034	61,113	249,229
Contra Costa	154,332	118,944	664,951
Del Norte	3,357	3,911	13,767
El Dorado	28,499	24,308	132,910
Fresno	266,221	213,108	1,267,840
Glenn	67,529	50,336	252,286
Humboldt	67,310	54,834	332,115
Imperial	84,062	72,282	264,826
Inyo	50,007	50,132	146,952
Kern	89,520	75,900	394,130
Kings	153,639	102,747	687,062
Lake	37,976	27,435	135,001
Lassen	28,907	19,297	106,897
Los Angeles	586,566	513,965	2,332,897
Madera	28,137	23,246	67,932
Marin	141,629	203,277	1,465,911
Mariposa	19,583	12,217	48,728
Mendocino	64,985	56,807	337,781
Merced	136,305	83,998	454,115
Modoc	38,112	23,789	134,731
Mono	2,559	2,515	4,541
Monterey	123,743	128,325	751,177
Napa	105,428	108,777	662,159
Nevada	35,776	23,482	150,596
Orange	239,536	186,746	1,198,290
Placer	62,151	43,619	235,006
Plumas	15,163	9,649	48,511
Riverside	95,767	84,226	438,099
Sacramento	144,704	116,556	666,906
San Benito	79,550	95,289	696,264
San Bernardino	105,606	91,008	579,665
San Diego	174,778	130,158	921,117
San Francisco	196,020	42,649	110,057
San Joaquin	212,434	175,456	955,501
San Luis Obispo	109,871	119,822	840,405
San Mateo	43,946	47,625	236,642
Santa Barbara	91,159	89,995	407,168
Santa Clara	233,729	209,068	1,166,782
Santa Cruz	79,015	85,705	577,989
Shasta	52,607	35,873	199,858
Sierra	6,998	4,458	24,877
Siskiyou	57,444	43,413	254,107
Solano	66,408	74,653	426,261
Sonoma	1,512,601	1,362,399	9,470,880
Stanislaus	121,677	128,905	648,248
Sutter	101,908	68,861	420,198
Tehama	96,134	59,852	306,452
Trinity	10,300	7,712	31,776
Tulare	204,167	191,965	1,033,110
Tuolumne	22,710	15,989	84,507
Ventura	61,708	60,921	372,111
Yolo	84,010	76,972	347,209
Yuba	44,202	27,936	111,892
Totals	7,096,339	6,067,267	35,907,973

DAIRY PRODUCTS.

Before the war the United States received dairy products from no fewer than 24 foreign countries; now these supplies have been largely stopped and it has become necessary not only to replace them at home but also to export large quantities. During the year ending June 30, 1916, exports of dairy products were valued at about 24 million dollars, with imports for the same period amounting to about 11 million dollars. At the end of the succeeding year, June 30, 1917, our exports had increased in value to about 49 million dollars and imports had shrunk to about 9 million dollars. Thus in one year the trade balance increased from 13 million dollars to 40 million dollars.

The greatest single item of our dairy exports is condensed milk, which now is meeting an unprecedented demand for both army and civilian consumption abroad. In 1914 the imports and exports of this commodity were about equal; that is, we imported about the same quantity we exported. Neither was a very important item in our trade. In 1917, however, exports of condensed milk increased more than 20 times, while imports remained at about the same level as before.

In the period before the war the major part of the dairy imports consisted of fancy cheese from Italy, Holland, France, Greece, and Switzerland. During 1914, 63,784,313 pounds of cheese were imported, while exports consisted of 2,427,577 pounds. In the fiscal year 1917 the imports of cheese dropped to 14,481,514 pounds, while exports rose to 66,087,213 pounds.

Dairy products in general are somewhat less accurately reported than the principal crops. This is particularly the case as regards the quantity of milk produced. Less than one-third of the milk produced was sold as such. Large quantities of milk and cream were sold on the butter fat basis. The butter made on farms in 1909 was valued at \$4,086,000.

Dairy Products and Their Value.
(From Report of Census Bureau.)

Dairy cows and products	Number	Value
Dairy cows on farms, April, 1910.....	467,332 head	-----
On farms reporting dairy products in 1909.....	408,812 head	-----
On farms reporting milk produced in 1909.....	315,385 head	-----
Specified dairy products, 1909:		
Milk.....	154,901,956 gals.	-----
Butter.....	15,301,871 lbs.	\$4,085,992
Cheese.....	2,777,873 lbs.	383,494
Milk sold.....	45,333,432 gals.	7,346,176
Cream sold.....	3,397,061 gals.	2,861,921
Butter fat sold.....	19,176,719 lbs.	5,766,394
Butter sold.....	10,285,583 lbs.	2,763,392
Cheese sold.....	2,513,815 lbs.	345,414
Total receipts from sales, 1909.....	-----	\$19,083,297
Total value of milk, cream, and butter fat sold, and butter and cheese made.....	-----	20,443,977

CHEESE AND BUTTER.

The production of cheese and butter, as given by counties by the Census Bureau, is that made on farms only. The production by creameries in 1909 was 37,283,450, and full cream cheese 1,567,640 pounds. The decrease from 1904, when it amounted to 3,601,051, is, no doubt, due in part to the increasing practice of separating the cream on the farm, as it is now more profitable to sell the separated cream to the butter factories. The figures issued by the State Dairy Bureau are also given. The cheese produced is, with a few exceptions, only that made by the ordinary Cheddar process. There is a considerable amount of fancy and handmade cheese which has not been reported. That the production of cheese in the state is far below the demand, is proved by the fact that more than double the amount manufactured in this state is received in the San Francisco market alone. We have the finest land for pasture and conditions favorable for the production of this article.

The amount of the output of cheese reported is much below the actual production in the state, and it is impossible to estimate it, as the owners of factories constantly change from making cheese to the production of cream. It has never been attempted to get a report on other than that made by the ordinary Cheddar process.

The supply from Europe being nearly exhausted some time ago some enterprising cheese makers who are familiar with the process of making these types of cheese have built large factories and hope to have a ready sale for the product in this country. One large factory, making Parmesan cheese, is in Sonoma County.

It has been demonstrated that a Cheddar type of cheese of the finest quality can be made in California, but most of the cheese made in this state is made for immediate consumption and is not suitable for exportation. There are, however, some factories in California that make cheese by the same process as is used in Oregon, Wisconsin and New York, and the quality of some of these brands is equal to any cheese made in the above-named states.

TABLE XXII.

Butter and Cheese Produced on Farms. 1910.*
(Compiled from the returns of the Bureau of the Census.)
(Pounds.)

Counties	1889		1899		1909	
	Butter	Cheese	Butter	Cheese	Butter	Cheese
Alameda	509,614	62,132	526,978	6,716	252,608	675
Alpine	25,075	110	12,495		28,613	500
Amador	168,436	4,395	91,584	5,184	68,812	82,517
Butte	178,329	1,143	149,200	40	124,437	
Calaveras	35,546	550	66,946	1,155	51,841	2,787
Colusa	177,100	100	107,222		75,829	272
Contra Costa	315,181	27,802	449,511	21,046	226,976	9,790
Del Norte	455,960		300,990		461,303	
El Dorado	216,790	9,125	162,072	9,200	176,354	8,734
Fresno	382,744	11,370	609,676	122,068	514,946	41,210
Glenn					86,762	
Humboldt	1,922,282	9,712	791,850	81	475,773	
Imperial					71,581	1,400
Inyo	55,316	3,373	47,813	185	116,364	5,426
Kern	104,633	88,850	142,392	12,403	73,839	80,051
Kings			145,704	2,575	73,295	139,000
Lake	119,349	350	121,186	102	92,723	200
Lassen	200,691	5,650	235,258	69,763	279,685	160
Los Angeles	676,575	250,890	509,757	5,243	323,374	1,643
Madera					48,459	
Marin	3,928,009	3,000	3,234,320	4,870	2,289,217	101,743
Mariposa	21,158	695	35,760	196	12,753	
Mendocino	375,445	22,000	349,840	3,924	355,048	1,357
Merced	153,467	4,420	138,243	98,595	94,602	200,840
Modoc	142,057	10,150	127,980		153,175	3,680
Mono	55,098	870	29,832	1,325	30,202	
Monterey	1,743,162	101,600	712,845	559,923	286,450	59,680
Napa	406,587	43,070	395,494	51,260	381,930	35,826
Nevada	147,042	100	119,236		153,271	1,970
Orange	295,146	3,480	220,218	938	333,283	50
Placer	195,507	520	217,508		108,876	30,545
Plumas	531,549	15,378	474,599	30,170	237,330	2,500
Riverside			298,345	208	312,248	650
Sacramento	725,404	230,455	551,020	543,356	164,427	497,064
San Benito	215,545	572,262	223,333	124,351	74,131	137,685
San Bernardino	303,420	1,460	249,439		207,745	362
San Diego	408,915	4,472	448,076	7,204	575,662	2,895
San Francisco	7,805	200	104,150	10	144	
San Joaquin	326,880	1,755	351,312	3,713	341,820	98,630
San Luis Obispo	3,322,918	417,791	1,286,289	135,023	1,369,563	169,350
San Mateo	655,008	521,936	349,421	509,714	91,997	64,751
Santa Barbara	1,055,380	94,235	821,804	57,773	244,632	25,665
Santa Clara	351,248	491,876	484,856	514,563	320,236	577,350
Santa Cruz	425,071	383,165	405,504	372,749	224,392	227,906
Shasta	111,484	6,000	122,610	148	137,723	
Sierra	123,598	170	114,546		135,938	1,318
Siskiyou	312,814	27,000	279,776	35,065	254,999	39,470
Solano	579,422	650	505,128	2,364	381,903	873
Sonoma	2,971,664	234,000	2,093,892	121,695	1,192,532	211,319
Stanislaus	143,231	25,160	153,026	228,363	154,998	2,125
Sutter	160,612	45,300	151,809	249,638	183,527	
Tehama	125,425	430	160,711	7,599	182,963	
Trinity	15,509		34,433		46,277	
Tulare	354,368	35,738	329,018	1,407	201,880	16,850
Tuolumne	27,716	525	60,150	60	35,522	155
Ventura	226,792	84,840	270,109	624	267,905	
Yolo	195,879		233,345	326,706	88,338	
Yuba	98,153	11,320	83,695		40,673	900
Totals	26,776,704	3,871,575	20,853,360	4,249,588	15,301,871	2,777,873

*This is made on farms, and does not include the amount made in creameries or factories, which is very much larger.

SUMMARY OF BUTTER AND CHEESE PRODUCED ON FARMS.

(Compiled from the returns of the Bureau of the Census.)

Butter, 1850-1910.

Year	Made on farms (pounds)	Made in factories (pounds)	Total (pounds)
1850	705		705
1860	3,095,035		3,095,035
1870	7,969,744		7,969,744
1880	14,084,405	2,074,344	16,158,749
1890	26,776,704	271,767	27,048,471
1900	20,853,860	13,147,137	34,000,997
1910	15,301,871	37,283,450	52,585,321

Cheese, 1850-1910.

Year	Made on farms (pounds)	Made in factories (pounds)	Total (pounds)
1850	150		150
1860	1,343,689		1,343,689
1870	3,395,074		3,395,074
1880	2,566,618	1,154,121	3,720,739
1890	3,871,575	1,091,222	4,962,797
1900	4,249,588	2,676,543	6,926,131
1910	2,777,873	1,567,640	4,345,513

TABLE XXIII.

Production of Butter and Cheese in California, 1916-1917.

(Compiled from the returns of the State Dairy Bureau. For year ending September 30.)

Butter.

County	1916, pounds	1917, pounds	County	1916, pounds	1917, pounds
Alameda	450,688	358,306	Orange	75,000	75,000
Alpine	28,000	25,000	Placer	133,542	126,056
Amador	133,953	264,607	Plumas	231,931	248,195
Butte	2,073,297	1,172,774	Riverside	229,692	149,517
Calaveras	137,207	162,461	Sacramento	1,422,051	1,398,385
Colusa	414,226	500,618	San Benito	349,633	294,004
Contra Costa	730,474	622,586	San Bernardino	92,300	67,000
Del Norte	842,280	1,381,960	San Diego	441,409	394,888
El Dorado	132,853	95,555	San Joaquin	1,618,455	1,576,357
Fresno	4,204,416	4,672,397	San Luis Obispo	2,303,547	2,733,303
Glenn	1,725,746	1,794,092	San Mateo	260,880	199,121
Humboldt	5,588,604	5,729,882	Santa Barbara	926,487	930,350
Imperial	6,780,552	6,245,487	Santa Clara	291,883	310,240
Inyo	339,677	341,043	Santa Cruz	233,666	289,571
Kern	971,811	1,015,301	Shasta	146,850	97,000
Kings	3,960,949	4,165,315	Sierra	308,908	206,766
Lake	107,560	54,218	Siskiyou	942,370	945,908
Lassen	177,433	140,000	Solano	923,498	982,411
Los Angeles	167,286	112,554	Sonoma	3,071,474	3,391,401
Madera	386,330	394,712	Stanislaus	9,980,021	8,935,964
Marin	2,475,329	2,458,548	Sutter	1,048,270	1,085,662
Mendocino	550,285	465,420	Tehama	501,396	468,170
Merced	4,028,062	4,239,748	Tulare	4,677,839	4,086,685
Modoc	232,561	231,943	Ventura	29,321	12,903
Mono	11,000	10,000	Yolo	1,241,063	1,014,706
Monterey	810,235	792,605	Yuba	303,777	211,159
Napa	586,503	545,454			
Nevada	197,574	149,683	Totals	70,030,174	68,378,021

Cheese.

County	1916, pounds	1917, pounds	County	1916, pounds	1917, pounds
Alameda -----	19,136	150,000	Sacramento -----	386,920	561,648
Amador -----	10,543		San Benito -----	366,001	213,726
Butte -----	80,300	165,990	San Diego -----		6,688
Colusa -----	36,500	90,321	San Joaquin -----	120,567	267,662
Contra Costa -----	14,352		San Luis Obispo -----	175,963	226,505
Del Norte -----	67,335	349,520	San Mateo -----	159,565	335,534
Fresno -----	607,185	617,000	Santa Barbara -----	163,750	173,100
Humboldt -----	430,030	253,602	Santa Clara -----	812,351	1,567,305
Imperial -----	210,990	270,270	Santa Cruz -----	245,974	330,958
Kern -----	30,000	40,700	Shasta -----	38,485	47,493
Lake -----		24,556	Sierra -----	13,335	16,000
Lassen -----	110,719	105,573	Siskiyou -----	86,969	103,224
Los Angeles -----	659,902		Solano -----	19,136	22,126
Madera -----		60,000	Sonoma -----	378,796	362,805
Marin -----	447,320	296,328	Stanislaus -----	480,657	479,351
Mendocino -----	101,366	129,762	Sutter -----	73,650	83,855
Merced -----	54,500	111,989	Tehama -----		80,000
Modoc -----	54,068	49,004	Tulare -----	86,700	72,000
Mono -----	12,000	4,000	Yolo -----	46,795	192,491
Monterey -----	1,031,384	1,336,727	Yuba -----	109,000	28,250
Napa -----	2,890	64,100			
Plumas -----		1,000			
Riverside -----		5,500	Totals -----	7,745,124	9,236,663

Summary of Butter, Cheese, and Condensed Milk Production, 1906-1917.
(Compiled from the reports of the State Dairy Bureau.)

Year	Butter, pounds	Cheese, pounds	Condensed milk, cases	Year	Butter, pounds	Cheese, pounds	Condensed milk, cases
1906 -----	44,044,578	6,418,480	118,025	1912 -----	54,940,886	4,785,617	172,309
1907 -----	44,599,211	5,928,942	134,907	1913 -----	55,542,709	5,600,972	172,800
1908 -----	48,469,585	6,262,194	100,069	1914 -----	59,286,460	6,016,815	274,096
1909 -----	43,899,018	4,431,194	83,476	1915 -----	67,522,409	6,105,775	345,402
1910 -----	45,989,141	4,648,848	172,916	1916 -----	70,030,174	7,745,124	379,212
1911 -----	50,380,736	4,580,495	116,884	1917 -----	68,373,021	9,236,663	506,095

Annual Value of Dairy Products, 1915-1917.

Products	Value
1915.	
Butter, 67,549,409 pounds -----	\$19,386,680
Cheese, 6,249,775 pounds -----	881,218
Condensed, evaporated and powdered milk, 16,579,317 pounds -----	1,352,959
Caseln, 690,750 pounds -----	34,537
Market milk, cream and ice cream -----	12,000,000
Calves produced on dairies -----	3,000,000
Skim milk and buttermilk -----	1,750,000
Total -----	\$38,405,394
1916.	
Butter, 70,030,174 pounds -----	\$19,181,264
Cheese, 7,745,124 pounds -----	1,203,592
Condensed, evaporated and powdered milk, 18,610,236 pounds -----	1,488,818
Caseln, 1,864,817 pounds -----	186,431
Market milk, cream and ice cream -----	14,000,000
Calves produced on dairies -----	2,500,000
Skim milk and buttermilk -----	1,750,000
Total -----	\$40,310,105

Annual Value of Dairy Products—Continued.

Products	Value
1917.	
Butter, 68,373,021 pounds.....	\$25,345,879
Cheese, 9,236,663 pounds.....	1,827,012
Condensed, evaporated and powdered milk, 25,631,560 pounds.....	2,771,654
Casein, 3,603,750 pounds.....	540,562
Market milk, cream and ice cream.....	14,500,000
Calves produced on dairies.....	2,000,000
Skim milk and buttermilk.....	1,250,000
Total	\$48,235,107

Receipts of Butter in San Francisco, 1906-1917.

Year	Pounds	Year	Pounds
1906	*	1912	23,548,850
1907	15,384,137	1913	23,905,100
1908	14,610,522	1914	22,580,950
1909	14,328,000	1915	27,823,500
1910	13,984,200	1916	27,877,700
1911	19,083,600	1917	25,362,500

*Not available owing to the fire.

Monthly Prices of Butter and Cheese in San Francisco Market, for the Years Ending September 30, 1913-1917.

(Cents per pound.)

Month	1913-1914		1914-1915		1915-1916		1916-1917	
	Butter	Cheese	Butter	Cheese	Butter	Cheese	Butter	Cheese
October	32.48	17.03	32.50	17.00	26.90	16.46	32.88	16.58
November	32.56	18.37	34.00	16.50	28.59	16.68	34.58	16.79
December	31.85	17.69	31.50	13.50	27.36	16.04	34.42	16.94
January	29.92	18.06	32.00	15.00	28.00	16.40	36.50	18.04
February	28.19	18.89	30.50	14.00	30.54	17.33	37.59	19.89
March	22.85	16.45	27.50	14.50	28.02	17.94	35.09	20.67
April	23.06	14.76	23.50	13.00	26.24	15.14	37.50	20.70
May	23.83	13.52	24.00	12.00	24.78	12.82	35.50	21.84
June	24.02	12.99	26.00	11.50	24.94	14.58	36.20	21.20
July	24.55	13.23	27.00	13.00	26.00	14.09	38.78	19.76
August	27.26	14.08	28.00	13.00	26.83	14.23	42.11	22.34
September	30.81	14.37	28.00	16.00	30.56	14.75	43.77	22.66
Average	27.61	15.79	28.70	14.10	27.39	15.54	37.07	19.78

Monthly Receipts of Butter and Cheese in San Francisco, for the Years Ending September 30, 1914-1917.

Month	1914-1915 (Pounds)		1915-1916 (Pounds)		1916-1917 (Pounds)	
	Butter	Cheese	Butter	Cheese	Butter	Cheese
October -----	1,463,600	841,500	1,921,100	869,200	1,881,000	1,231,400
November -----	1,315,400	548,800	1,732,400	748,000	1,856,000	1,150,100
December -----	1,735,100	538,300	1,832,500	828,700	1,900,000	921,700
January -----	1,539,600	508,400	1,790,600	767,700	1,388,200	698,700
February -----	1,553,800	488,000	1,766,200	707,800	1,668,400	684,700
March -----	2,575,500	603,400	2,468,600	946,200	2,378,400	994,800
April -----	2,996,300	775,800	3,404,000	1,276,600	3,045,400	1,049,600
May -----	3,154,866	796,600	3,259,000	1,626,000	3,354,600	1,533,400
June -----	2,775,334	1,403,300	3,066,000	1,865,400	2,685,300	1,248,400
July -----	3,598,000	1,455,200	2,212,500	2,100,800	1,847,400	1,591,500
August -----	2,591,400	1,248,900	2,283,800	1,612,400	1,731,300	1,394,500
September -----	2,023,800	1,392,400	2,141,000	1,111,800	1,626,500	1,068,000
Totals -----	27,323,500	10,600,600	27,877,700	14,460,600	25,362,500	13,586,800

Imports and Exports.

About 50,000,000 pounds of cheese was imported in 1915, 30,000,000 pounds in 1916, and only 14,000,000 pounds in 1917. The exports of domestic cheese amounted to 55,000,000 pounds in 1915, 44,000,000 pounds in 1916, and 66,000,000 pounds in 1917. The duty on imported butter is $2\frac{1}{2}$ cents per pound, and cheese 20 per cent ad valorem on October 4, 1913, and after.

BEEES, HONEY, AND WAX.

In the earlier years the parent stock of the honey bee in this country was the common brown or black bee of Germany. In 1860 the Department of Agriculture introduced the Italian bee, about twenty years later the Cyprian, and still later the Carniolan.

Summary of Honey and Wax, 1860-1910.
(From census reports.)

Year	Honey. pounds	Wax. pounds	Year	Honey. pounds	Wax. pounds
1860 -----	12,276	584	1890 -----	3,929,889	60,237
1870 -----	294,326	4,903	1900 -----	3,667,738.	115,330
1880 -----	574,029	14,672	1910 -----	10,264,715	126,445

The number of farms reporting bees decreased from 6,915 in 1909 to 6,870 in 1910, while the colonies of bees increased from 129,444 to 201,023, or 55.3 per cent, and the value increased from \$363,885 to \$729,793, or 100.6 per cent.

The average production of honey is 70 pounds to the colony, and the average value 6 cents per pound. The price varies according to color and quality, the extracted honey from 4 to $7\frac{1}{2}$ cents, and comb honey from 10 to 18 cents per pound. In many portions of the state great loss is caused by American and European foul brood, commonly called black brood, the percentage of damage having steadily risen from 7 per cent in 1909 to 20 per cent in 1912, and 25 per cent in southern California in 1913.

In 1917 the honey crop of California amounted to 296 carloads or 8,900,000 pounds. The highest price paid to producers was about 18 cents per pound, and the lowest about $4\frac{1}{2}$ cents a pound, but the average price obtained by the beekeeper was about 9 cents a pound for extracted honey. For comb honey the average price approximated 14 cents per pound. Of the 296 carloads of honey produced, 280 were extracted honey and the balance comb. The total value of the honey produced in the state amounted to about \$950,000.

Production of Honey, 1902-1917.

Year	Pounds	Year	Pounds
1902	5,125,000	1910	4,500,000
1903	8,400,000	1911	5,600,000
1904	1,040,000	1912	4,800,000
1905	9,500,000	1913	3,200,000
1906	5,250,000	1914	7,900,000
1907	6,550,000	1915	9,300,000
1908	5,250,000	1916	10,600,000
1909	10,500,000	1917	8,900,000

CALIFORNIA HONEY CROP, AND IMPORTS AND EXPORTS OF HONEY AND WAX, 1902-1917.*

(Duty on imported honey, 10 cents per gallon.)

Year	California, crop, pounds	Exports of domestic honey, value	Imports, gallons	Value
1902	5,125,000	106,112	167,301	56,383
1903	8,400,000	64,220	237,696	115,400
1904	1,040,000	69,317	206,292	69,053
1905	9,500,000	63,367	198,617	76,719
1906	5,250,000	111,945	138,221	50,651
1907	6,500,000	93,690	175,672	70,854
1908	5,250,000	78,102	211,992	98,425
1909	10,500,000	85,578	145,691	60,884
1910	4,500,000	159,401	103,640	52,968
1911	9,500,000	81,649	112,553	62,942
1912	4,800,000	212,652	115,040	62,684
1913	3,200,000	182,252	116,271	68,717
1914	7,900,000	135,669	75,079	38,665
1915	9,300,000	114,038	303,965	124,843
1916	15,600,000	252,487	221,224	97,461
1917	8,900,000	736,139	427,650	289,317

*For the statistics previous to 1900, see the Report for 1913, pages 64, 66.

IMPORTS AND EXPORTS OF BEESWAX, 1900-1917.
(Duty free.)

Year	Exported domestic		Imported	
	Pounds	Value	Pounds	Value
1900.....	319,879	\$91,913	213,813	\$51,526
1901.....	140,276	39,464	213,773	55,884
1902.....	125,283	36,541	406,706	115,937
1903.....	70,811	21,337	488,576	127,220
1904.....	55,631	16,545	425,168	116,878
1905.....	85,406	24,966	378,560	101,121
1906.....	101,726	29,894	587,617	168,014
1907.....	117,169	36,392	917,088	264,637
1908.....	90,506	28,659	671,526	194,769
1909.....	77,547	23,293	764,937	231,559
1910.....	89,890	27,740	972,145	282,905
1911.....	101,735	31,404	902,904	270,112
1912.....	109,478	32,556	1,076,741	328,752
1913.....	116,296	33,131	828,793	253,867
1914.....	96,215	27,292	1,412,200	476,364
1915.....	181,328	57,971	1,564,506	439,541
1916.....	147,772	48,252	2,146,380	594,209
1917.....	383,722	131,606	2,685,962	894,318

TABLE XXIV.
Bees, Beeswax, and Honey by Counties.
(From census reports.)

Counties	Colonies, 1909	Honey, pounds, 1909	Beeswax, pounds, 1909
Alameda	610	6,848	179
Alpine	49	220	
Amador	170	2,402	100
Butte	1,384	9,702	170
Calaveras	362	8,413	118
Colusa	1,406	67,689	798
Contra Costa	698	15,950	284
Del Norte	78	1,395	
El Dorado	464	8,105	75
Fresno	9,242	616,609	7,261
Glenn	420	10,982	250
Humboldt	1,803	23,481	367
Imperial	4,740	514,125	4,453
Inyo	5,868	312,620	2,131
Kern	4,501	204,920	2,632
Kings	4,690	238,791	3,148
Lake	276	5,105	43
Lassen	298	5,642	5
Los Angeles	25,930	1,289,820	15,501
Madera	375	16,439	370
Marin	20	205	55
Mariposa	34	300	25
Mendocino	441	6,090	34
Merced	4,072	204,098	3,150
Modoc	839	19,796	232
Mono	438	20,355	425
Monterey	3,669	177,279	2,619
Napa	524	8,939	204
Nevada	260	5,452	42
Orange	5,159	325,656	2,764
Placer	657	7,338	80
Plumas	121	2,280	5
Riverside	18,900	902,106	12,915
Sacramento	1,835	55,272	160
San Benito	1,777	68,253	773
San Bernardino	8,073	363,025	5,983
San Diego	30,566	1,559,607	18,589
San Francisco	6		
San Joaquin	3,014	104,645	3,459
San Luis Obispo	3,936	177,342	1,963
San Mateo	289	5,458	193
Santa Barbara	4,072	288,875	4,060
Santa Clara	2,542	77,252	842
Santa Cruz	693	11,032	98
Shasta	689	8,466	185
Sierra	49	2,081	10
Siskiyou	2,775	85,322	324
Solano	256	2,873	
Sonoma	824	7,014	44
Stanislaus	2,554	61,592	1,371
Sutter	2,055	76,812	745
Tehama	786	15,779	115
Trinity	98	1,605	13
Tulare	9,568	290,435	4,743
Tuolumne	363	12,310	65
Ventura	23,714	1,839,986	20,918
Yolo	2,442	106,982	1,125
Yuba	149	545	10
Totals	201,023	10,264,715	126,445

PART V.

FARM CROPS.

Farm Crops 1910-1917: Cereals: Barley, Buckwheat, Corn, Oats, Rye, Wheat; Potatoes; Broom Corn, Hay; Sugar Beets, Cotton, Rice, and Hops; Farm Crops for Twenty-five Years; Value of All Crops; Farm Crops by Counties.

In comparing one year with another it should be borne in mind that acreage is, on the whole, a better index of the general change or tendencies of agriculture than either the quantity or the value of the crops, since variations in quantity may be due largely to temporarily favorable or unfavorable climatic conditions, and variations in the value of the crops are largely affected by changes in prices. The acreage in fruits and nuts can not be given, as the extent of the industry has always been calculated by the number of trees only.

Crops	Acreage, 1909	Value
Cereals	1,970,492	\$28,039,826
Other grains and seeds	163,776	6,517,453
Hay and forage	2,533,347	42,187,215
Tobacco	4	479
Cotton (including cotton seed)	324	12,776
Hemp	300	39,000
Hops	8,391	1,731,110
Broom corn	1,023	32,509
Sugar crops	79,604	4,335,358
Sundry minor crops	7	840
Potatoes and sweet potatoes and yams	72,799	5,235,073
Other vegetables	79,163	6,886,885
Flowers, plants, and nursery products	5,816	3,601,301
Small fruits	9,687	1,789,214
Totals	4,924,733	\$100,409,039
Seeds		\$800,758
Fruits and nuts		48,917,655
Forest products of farm		2,949,732
Miscellaneous		33,829
Total		\$52,701,974

Summary of California Crops Harvested in 1909.
(Compiled from reports of the Bureau of the Census.)

Crop cereals	Number of farms reporting	Acres	Amount	Value
Corn -----	5,728	51,985	^{Bushels} 1,273,901	\$1,077,411
Oats -----	2,477	192,158	4,143,688	2,637,047
Wheat, total -----		478,217	6,203,206	6,323,963
Common winter -----	3,628	413,687	5,168,210	5,311,387
Common spring -----	1,075	64,070	1,029,907	1,006,819
Durum or macaroni -----	7	460	5,089	5,777
Emmer and spelt -----	19	840	19,755	13,758
Barley -----	7,597	1,195,158	26,441,954	17,184,508
Buckwheat -----	26	849	14,681	11,569
Rye -----	193	7,027	70,683	65,846
Kaffir corn and milo maize -----	2,521	44,306	938,049	725,704
Total cereals -----		1,970,492	39,105,917	\$28,039,826
Hay and forage—				
Timothy alone -----	370	13,725	^{Tons} 20,001	\$185,579
Timothy and clover mixed -----	958	46,661	73,183	629,575
Clover alone -----	708	8,519	20,330	213,289
Alfalfa -----	19,904	484,134	1,639,707	13,068,530
Millet or Hungarian grasses -----	101	2,142	2,688	27,483
Other tame or cultivated grasses -----	2,274	90,414	119,415	1,253,428
Wild, salt or prairie grasses -----	3,679	253,127	281,033	2,028,494
Grains cut green -----	39,397	1,604,745	2,019,526	24,066,727
Coarse forage -----	2,175	25,868	60,611	436,095
Root forage -----	1,021	4,012	90,586	266,015
Totals -----	53,760	2,533,347	4,327,130	\$42,187,215
Sundry crops—				
Potatoes -----	12,533	67,888	^{Bushels} 9,824,005	\$4,879,449
Sweet potatoes and yams -----	1,133	5,111	572,814	355,624
Tobacco -----	12	4	¹ 4,502	479
Cotton -----	18	324	¹ 183	11,744
Cotton seed (estimated), 92 tons -----				1,032
Hops -----	273	8,391	¹ 11,994,953	1,731,110
Hemp -----	2	300	¹ 600,000	39,000
Broom corn -----	24	1,023	¹ 614,250	32,509
Sundry minor crops -----		7		840
Other grains and seeds—				
Dry edible beans -----	3,054	157,987	^{Bushels} 3,328,218	\$6,295,457
Horse beans -----	67	150	5,534	5,659
Dry peas -----	262	2,959	57,468	101,016
Peanuts -----	42	99	2,991	2,889
Flaxseed -----	8	240	1,882	3,224
Mustard seed -----	66	1,964	63,965	100,731
Sorghum cane seed -----	14	103	1,147	1,997
Sunflower seed -----	21	257	6,855	6,264
Timothy seed -----	4		357	1,065
Clover seed -----	10		310	2,823
Alfalfa seed -----	347		23,791	200,823
Other tame grass seed -----	5		1,077	1,323
Flower and garden seeds -----	109			594,724
Totals -----		163,776	3,467,885	\$6,517,453

¹Pounds. ²Bales.

Size of Cereal Crops in California.

The acreage sown to wheat and other cereal crops in California has greatly decreased in recent years, the land being devoted to orchards and vineyards, which yield a much higher profit.

Barley.

California has held the first place in the production of barley for a number of years, as far back as the year 1852. The area in barley has been upwards of 1,000,000 acres since 1901, the largest area being in 1910, with 1,195,000 acres. The yield per acre varied from 16.7 bushels in 1900 to 31.0 in 1910, when the production was 46,500,000 bushels, or the largest on record. In 1916 the estimated acreage was 1,190,000, and the production 33,320,000 bushels, and in 1917, 1,350,000 acres, and the production 39,150,000 bushels.

Buckwheat.

This crop has never been grown to any extent in California; therefore, the production being so small, regular records have not been kept. The area under cultivation is but a few hundred acres, and the production from 10,000 to 15,000 bushels.

Corn.

Corn has also fallen off; the acreage was between 100,000 and 161,000 in former years, the highest production being in 1891, when it amounted to upward of 5,570,000 bushels. In 1916 the production was 2,048,000 bushels, classified as follows: white, 1,106,000, or 54 per cent; yellow, 922,000, or 45 per cent; mixed, 20,000 or 1 per cent. The total crop in the United States was almost equally divided between white corn and yellow corn, white comprising 41 per cent, yellow 43.1 per cent, and mixed 15.9 per cent. In 1917 the acreage was 75,000 acres, and the production 2,400,000 bushels, of which 60 per cent was white, or 1,440,000 bushels; 36 per cent yellow, or 864,000 bushels; and 4 per cent mixed, or 96,000 bushels.

In the United States, corn is grown more widely than any other crop. It is grown to some extent in every state in the Union. The acreage in the United States usually exceeds the combined acreages of wheat, oats, barley, rye, buckwheat, and rice. Annual production ranges from 2,500,000,000 to 3,000,000,000 bushels, or slightly exceeding the combined yields of the cereals just mentioned. The value is far in excess of any other crop. With the possible exception of cotton, corn is the most important and irreplaceable crop in the agriculture of this country.

The corn crop is distinctly an American crop, about 75 per cent of the "world" yearly production of approximately three and a half billion bushels being grown in the United States. What becomes of this vast quantity of corn is frequently asked. Answers to inquiries sent to crop correspondents of the Bureau of Statistics of the United States Department of Agriculture permit some interesting deductions to be made upon this subject.

The average annual production of corn in the United States in the last few years (not including the bumper crop of 1912) was about 2,700,000,000 bushels. Of this it is estimated that about 26 per cent, or 702,000,000 bushels, were marketed, 8 per cent (216,000,000 bushels) remaining in the near-by towns, 11 per cent (297,000,000 bushels) going to distant towns or for export, and 7 per cent (189,000,000 bushels) going to distant farms.

The disposition of the 513,000,000 bushels estimated as used in "towns" (as distinguished from "farm" consumption) was approximately as follows:

	Bushels	Per cent of total crop
Used in flour and grist mills (census).....	245,000,000	9.1
Used in the manufacture of glucose and starch.....	40,000,000	.5
Used in manufacture of distilled liquors, 1910.....	21,000,000	.8
Used in manufacture of malt liquors.....	14,000,000	.5
Used for feed in towns.....	120,000,000	4.4
Exported.....	45,000,000	1.7
Balance indefinite.....	28,000,000	1.0
Totals.....	513,000,000	19.0

Oats.

In oats the acreage has increased from 153,000 acres in 1900 to 192,000 in 1910 and 200,000 in 1916. In 1917 the acreage was 196,000, and the production 6,860,000 bushels.

Rye.

Rye has always been a small crop in California, and the area and production have fallen off greatly in recent years, the acreage being 62,925 in 1900 and 7,027 in 1910. In 1916 the acreage was 8,000 and the production 104,000 bushels, and in 1917 none was reported.

Wheat.

In wheat the production decreased heavily between 1900 and 1910, while potatoes, hay, and hops all showed an increase. The acreage in wheat in 1915 was 440,000, and in 1916, 350,000 acres and the production 5,600,000 bushels. In 1917 the acreage was 375,000 and the production 7,425,000 bushels.

Broom Corn.

This crop has never been grown to any extent in California. The production from 1880 to 1910 has been: In 1880, 191,600 pounds; 1890, 815 acres and 611,975 pounds; 1900, 1,669 acres, 1,146,000 pounds, and 1910, 1,023 acres, and 614,250 pounds.

Potatoes.

The potato is the most important vegetable raised.

The acreage in potatoes in 1916 was 75,000, compared with 78,000 the previous year, and the production 10,575,000 bushels, compared with 10,140,000 in 1915. In 1917 the acreage was 105,000 and the production 15,225,000 bushels.

The principal regions of California in which potatoes are grown at the present time are the Delta region, comprising parts of San Joaquin, Sacramento, and Contra Costa counties; the Salinas Valley in Monterey County; the Napa and Sonoma valleys in their respective counties, and the regions comprising parts of Santa Barbara, Los Angeles, and Riverside counties. The average yield per acre in these several localities

differs widely, ranging from 4,500 to 12,000 pounds. While many varieties of potatoes have been tried in California, but few have been found well adapted.

Sweet Potatoes.

Next to the Irish potato, the sweet potato is the most extensively grown vegetable in the United States. In California it is not cultivated on a large scale. In 1909, the acreage amounted to 5,111, with a production of 572,814 bushels.

In 1915 the acreage in sweet potatoes was about 6,000, and the production 810,000 bushels, and in 1916 the same acreage produced 960,000 bushels, and in 1917 1,002,000 bushels.

Hay (Tame).

The acreage in hay in 1915 was 350,000, compared with 2,700,000 the previous year. In 1916 the acreage was 2,500,000, and the production 4,375,000 tons, and in 1917, 2,400,000 acres, and the production 4,560,000 tons.

Hay By Varieties 1916-1917.

	1916 (tons)	1917 (tons)
Timothy	44,000	101,000
Timothy and clover mixed	44,000	121,000
Clover alone	87,000	75,000
Alfalfa	1,888,000	2,287,000
Millet and Hungarian grass		5,000
Grains cut green for hay	2,056,000	1,714,000
Other tame hay	806,000	807,000
Wild, salt, and prairie hay	240,000	259,000
Total all hay	4,615,000	4,819,000

SUMMARY OF FARM CROPS, 1850-1910.*

(Compiled from the reports of the Bureau of the Census.)

Year	Barley		Buckwheat		Corn	
	Acres	Bushels	Acres	Bushels	Acres	Bushels
1850		9,712				12,236
1860		4,415,426		76,887		510,708
1870		8,783,490		21,928		1,221,222
1880	586,350	12,463,561	1,012	22,307	71,781	1,993,825
1890	815,995	17,548,386	664	10,388	70,303	2,381,270
1900	1,029,647	25,149,335	395	7,835	53,930	1,477,093
1910	1,195,158	26,441,954	849	14,681	51,935	1,273,901

Year	Oats		Rye		Wheat	
	Acres	Bushels	Acres	Bushels	Acres	Bushels
1850						17,328
1860		1,043,006		52,140		5,928,470
1870		1,757,507		26,275		16,676,702
1880	49,947	1,341,271	20,281	181,681	1,832,429	29,017,707
1890	57,589	1,463,068	27,413	243,871	2,840,807	40,869,337
1900	153,734	4,972,856	62,925	524,451	2,683,405	36,534,407
1910	192,158	4,143,688	7,027	70,683	478,217	6,203,206

*When blank, the acreage or production, if any, was not reported.

SUMMARY OF FARM CROPS, 1850-1910*—Continued.

Year	Potatoes		Hay		Hops	
	Acres	Bushels	Acres	Tons	Acres	Pounds
1850		9,292		2,068		
1860		1,789,463		305,655		8
1870		2,049,227		551,773		625,064
1880		4,550,565	758,024	1,045,119		1,444,077
1890	38,178	3,664,920	1,431,574	2,218,285	3,974	6,547,338
1900	42,098	5,242,586	2,339,601	3,035,266	6,890	10,124,660
1910	67,688	9,824,005	2,533,347	4,327,130	8,391	11,994,953

*When blank, the acreage or production, if any, was not reported.

Value of Farm Crops by Counties in 1910.

The leading counties in the production of various crops according to the last census, classed according to value, are as follows:

Cereals.

(Value of \$1,000,000 and upward.)

County	Value	County	Value
San Joaquin	\$3,238,000	Solano	\$1,292,000
Monterey	1,695,000	Madera	1,220,000
Merced	1,691,000	Yolo	1,062,000
Colusa	1,578,000	Tulare	1,442,000
Stanislaus	1,315,000		

Hay and Forage.

(Value of \$1,000,000 and upward.)

Los Angeles	\$3,430,000	Stanislaus	\$1,424,000
San Joaquin	1,763,000	Tulare	1,362,000
Fresno	1,702,000	Merced	1,355,000
Riverside	1,624,000	Kings	1,171,000
Contra Costa	1,617,000	Sonoma	1,170,000
Santa Clara	1,587,000	Monterey	1,125,000
Alameda	1,547,000	San Diego	1,110,000

Vegetables.

County	Value
San Joaquin	\$2,149,000
Los Angeles	1,255,000
Contra Costa	1,125,000

TABLE XXV.

ACREAGE OF CERTAIN FARM CROPS GROWN IN FORTY-EIGHT OF THE COUNTIES OF CALIFORNIA IN 1917.

Compiled from reports of the County Horticultural Commissioners by Geo. P. Weldon, Chief Deputy, and O. W. Newman, Assistant Secretary, State Commission of Horticulture.

County	Alfalfa	Beans	Beets	Hay	Hops	Potatoes
Alameda	3,795	250	3,000			1,500
Butte	12,000		2,300			
Colusa	10,000	8,000				
Contra Costa	8,500			70,000		
El Dorado						
Fresno*						
Glenn	20,200	350	150			
Humboldt	300	1,800	1,500	5,000		950
Imperial	114,491	580				
Inyo	25,000	400	500	5,400		600
Kern	95,000	300	6,000	15,000		1,200
Kings*						
Lake	4,000	899		8,000	150	150
Los Angeles	16,841	58,864	57,019	150,618		10,000
Madera						
Marin	50	250				2,200
Monterey	19,500	17,000				
Mendocino	5,000				1,700	
Merced	80,000	20,000	350			500
Modoc	14,878	150		57,000		200
Napa	500					100
Nevada	600	200		1,200		300
Orange	3,000	55,000	40,000	10,000		2,000
Placer	500	1,000		20,000		320
Riverside	33,680	18,871	5,168	99,980		1,782
Sacramento	42,000	25,000		96,000	2,948	2,000
San Mateo		3,000		15,000		250
San Benito	2,000	300	1,000	12,000		300
San Bernardino	12,763	16,332	3,442	25,397	6,802	3,445
San Diego	1,500	13,500	200			600
San Joaquin	3,000	51,000	5,000			26,000
San Luis Obispo	3,500	20,000	3,169	87,000		2,000
Santa Barbara	1,400	88,715	9,200	20,000		300
Santa Clara*						
Santa Cruz	400	1,500	450	10,000	85	600
Shasta	3,500	400		4,000	50	
Siskiyou	60,000	210	250	30,000		1,000
San Francisco						
Solano*						
Sonoma	650	750		65,000	3,950	2,500
Stanislaus	94,408	25,992	3,172	25,000		355
Sutter		45,000	1,500		250	
Tehama	9,000	800			200	500
Tulare		10,000				2,000
Ventura	2,000	90,000	12,000	50,000		
Yolo	38,000	36,000	1,250	500	1,256	880
Yuba	4,145	4,175		8,194	600	75
Totals	746,101	616,088	156,620	840,289	17,991	64,557

*Figures from Report of 1916.

THE BEST COUNTIES FOR CERTAIN CROPS.

The six leading counties in the production of cereals, hay and forage, potatoes, sweet potatoes, beans, peas, and other vegetables, and sugar beets are as follows, and this list may be taken to show the districts in which experience has proved that they are best suited. The acreage is that given in the last census in 1910.

Barley.

County	Acreage	County	Acreage
San Joaquin	125,114	Colusa	89,985
Monterey	98,923	Merced	88,145
Madera	90,341	Stanislaus	57,529

Corn.

Los Angeles	9,064	Tulare	2,527
San Diego	4,554	San Joaquin	2,547
Orange	3,054	Ventura	2,409

Oats.

County	Acreage	County	Acreage
Stanislaus	33,546	San Mateo	16,125
San Joaquin	23,208	Madera	10,569
Merced	19,843	Santa Barbara	9,494

Rye.

Merced	2,108	Lassen	526
San Joaquin	1,843	Modoc	406
Plumas	704	Siskiyou	306

Wheat.

Tulare	66,567	San Joaquin	24,786
Madera	39,468	Monterey	22,924
San Luis Obispo	33,608	Stanislaus	22,068

Kaffir Corn and Milo Maize.

Tulare	10,987	Kings	3,931
Imperial	9,789	San Joaquin	2,968
Stanislaus	4,448	Kern	2,813

Hay and Forage.

Los Angeles	154,048	Fresno	95,265
San Joaquin	104,916	Contra Costa	68,937
Tulare	91,595	Riverside	88,430

Potatoes.

San Joaquin	9,895	Los Angeles	2,799
Sacramento	5,036	Monterey	2,374
Sonoma	3,260	Alameda	1,854

Sweet Potatoes.

County	Acreage	County	Acreage
Merced	780	San Joaquin	88
Los Angeles	218	Orange	75
Sacramento	117	Sutter	48

Beans.

Ventura	58,744	San Joaquin	13,954
Santa Barbara	22,355	San Luis Obispo	11,169
Orange	21,188	Sacramento	7,801

Peas.

Ventura	756	Alameda	215
Humboldt	517	San Mateo	186
Stanislaus	415	Monterey	154
San Joaquin	362		

All Other Vegetables.

Los Angeles	13,385	Sacramento	6,367
Alameda	7,459	Santa Clara	4,241
San Joaquin	6,728	Orange	3,785

Sugar Beets.

Ventura	14,333	Orange	10,275
Los Angeles	14,191	Monterey	9,900
Santa Barbara	11,320	Yolo	5,714

RANK OF STATES IN THE PRODUCTION OF CEREALS AND PRINCIPAL CROPS IN 1917 (Compiled from The Reports of The U. S. Department of Agriculture.)

Barley (34 States).

State	Acreage	Production, bushels	Average per acre, bushels
1. California	1,350,000	39,150,000	29.0
2. Minnesota	1,400,000	37,800,000	27.0
3. South Dakota	1,020,000	26,520,000	26.0
4. North Dakota	1,825,000	22,812,000	12.5
5. Wisconsin	600,000	19,200,000	32.0
United States	8,835,000	208,975,000	23.7

No barley is imported.

The exports of barley for the last four years:

Calendar year	Bushels	Value
1914	18,208,186	\$11,183,382
1915	26,529,403	19,312,683
1916	22,435,920	19,752,951
1917	17,858,964	26,206,022

Buckwheat (24 States).

State	Acreage	Production, bushels	Average per acre, bushels
1. Pennsylvania	350,000	6,300,000	18.0
2. New York	350,000	5,940,000	18.0
3. West Virginia	45,000	900,000	20.0
4. Virginia	33,000	696,000	21.1
5. Massachusetts	2,000	30,000	15.0
United States	1,006,000	17,460,000	17.4

No buckwheat is imported.

Exports of buckwheat for the last four years:

Calendar year	Bushels	Value
1914	196,460	\$191,668
1915	497,150	470,387
1916	878,486	380,453
1917	149,068	260,206

Corn (48 States).

State	Acreage	Production, bushels	Average per acre, bushels
1. Illinois	11,000,000	418,000,000	38.0
2. Iowa	11,100,000	410,700,000	37.0
3. Missouri	7,200,000	262,000,000	35.0
4. Nebraska	9,240,000	249,480,000	27.0
5. Indiana	5,651,000	208,496,000	36.0
United States	119,755,000	3,159,494,000	26.4

Imports and exports of corn during the last four years:

Calendar year	Imports		Exports (domestic)	
	Bushels	Value	Bushels	Value
1914	15,821,177	\$9,676,050	15,626,149	\$12,246,293
1915	6,499,424	3,717,501	48,263,642	38,479,682
1916	2,155,029	1,234,874	53,548,298	46,940,416
1917	1,654,373	1,982,690	52,169,553	72,936,631

Oats (48 States).

State	Acreage	Production, bushels	Average per acre, bushels
1. Iowa	5,220,000	246,750,000	47.0
2. Illinois	4,700,000	244,400,000	52.0
3. Minnesota	3,250,000	120,250,000	37.0
4. Nebraska	3,038,000	115,444,000	38.0
5. Wisconsin	2,250,000	99,000,000	44.0
United States	43,572,000	1,587,286,000	36.4

Imports and exports of oats for the last four years:

Calendar year	Imports		Exports (domestic)	
	Bushels	Value	Bushels	Value
1914 -----	9,429,010	\$3,423,347	35,066,867	\$19,026,302
1915 -----	963,891	185,332	104,572,313	59,229,186
1916 -----	585,217	259,677	101,411,239	53,009,919
1917 -----	1,982,840	1,282,902	96,689,119	71,168,623

Rye (38 States).

State	Acreage	Production, bushels	Average per acre, bushels
1. North Dakota -----	1,040,000	9,890,000	9.5
2. Wisconsin -----	410,000	7,585,000	18.5
3. Minnesota -----	410,000	7,585,000	18.5
4. South Dakota -----	350,000	5,600,000	16.0
5. Michigan -----	341,000	5,115,000	15.0
United States -----	4,102,000	60,145,000	14.7

No rye is imported.

Exports of rye during the last four years:

Calendar year	Bushels	Value
1914 -----	7,847,235	\$7,794,125
1915 -----	13,155,788	15,350,766
1916 -----	15,161,090	18,741,061
1917 -----	13,411,524	25,821,389

Wheat (42 States).

State	Acreage	Production, bushels	Average per acre, bushels
1. Minnesota -----	3,310,000	57,965,000	17.5
2. North Dakota -----	7,000,000	56,000,000	8.0
3. South Dakota -----	3,716,000	52,024,000	14.0
4. Kansas -----	3,757,000	45,934,000	12.2
5. Ohio -----	1,870,000	41,140,000	22.0
United States -----	45,941,000	650,828,000	14.2

Imports and exports of wheat for the last four years:

Calendar year	Imports		Exports (domestic)	
	Bushels	Value	Bushels	Value
1914 -----	1,714,130	\$1,546,155	173,861,944	\$187,184,100
1915 -----	4,052,001	4,084,845	205,925,577	282,586,926
1916 -----	8,571,509	10,730,483	154,049,686	226,746,370
1917 -----	33,583,109	67,809,807	106,202,318	245,693,541

Potatoes (48 States).

State	Acreage	Production, bushels	Average per acre, bushels
1. New York -----	400,000	38,000,000	95.0
2. Michigan -----	378,000	35,910,000	95.0
3. Wisconsin -----	307,000	34,998,000	114.0
4. Minnesota -----	300,000	33,600,000	112.0
5. Pennsylvania -----	321,000	29,532,000	92.0
United States -----	4,390,000	442,536,000	100.8

The imports of potatoes generally averaged less than half a million bushels until 1913; for the last four years the quantities and value have been as follows:

Calendar year	Imports		Exports (domestic)	
	Bushels	Value	Bushels	Value
1914 -----	799,728	\$511,908	2,714,485	\$2,238,896
1915 -----	235,506	267,814	3,900,149	2,644,139
1916 -----	885,665	912,463	3,229,646	3,875,549
1917 -----	3,182,136	5,000,575	2,424,542	4,241,501

Sweet Potatoes (26 States).

State	Acreage	Production, bushels	Average per acre, bushels
1. Alabama -----	178,000	16,020,000	90.0
2. Georgia -----	125,000	11,625,000	93.0
3. North Carolina -----	90,000	8,550,000	95.0
4. South Carolina -----	80,000	7,600,000	95.0
5. Texas -----	84,000	6,552,000	78.0
United States -----	953,000	87,141,000	91.4

Rice (11 States).

State	Acreage	Production, bushels	Average per acre, bushels
1. Louisiana -----	500,000	18,250,000	36.5
2. Texas -----	290,000	6,210,000	27.0
3. Arkansas -----	146,200	5,994,000	41.0
4. California -----	80,000	5,600,000	70.0
5. Mississippi -----	2,100	63,000	30.0
United States -----	964,100	36,278,000	37.6

Imports and exports of rice for the last four years:

Calendar year	Imported*		Exported	
	Pounds	Value	Pounds	Value
1914 -----	255,064,251	\$6,286,358	50,284,435	\$2,079,773
1915 -----	290,144,034	6,372,295	67,592,348	2,772,486
1916 -----	248,824,135	6,033,570	130,936,878	5,448,686
1917 -----	298,980,202	9,238,992	207,501,509	12,375,413

*Uncleaned (including paddy), cleaned, rice flour, rice meal, and broken rice.

Hay (48 States).

State	Acreage	Production, tons	Average per acre, tons
1. New York -----	4,185,000	6,110,000	1.46
2. Wisconsin -----	2,703,000	4,595,000	1.70
3. California -----	2,400,000	4,560,000	1.90
4. Pennsylvania -----	3,092,000	4,329,000	1.40
5. Ohio -----	2,925,000	4,154,000	1.42
United States -----	53,516,000	79,528,000	1.49

Imports and exports of hay for the last four years:

Calendar year	Imports		Exports (domestic)	
	Tons	Value	Tons	Value
1914 -----	111,293	\$1,167,310	50,015	\$832,490
1915 -----	41,487	640,271	172,031	3,061,227
1916 -----	12,033	187,370	136,157	2,678,560
1917 -----	230,535	2,348,730	51,904	1,193,092

Cotton (15 States).

State	Acreage	Production, bales	Average per acre, bales
1. Texas -----	11,052	3,115,000	135.0
2. Georgia -----	5,025	1,820,000	173.0
3. South Carolina -----	2,870	1,235,000	205.0
4. Mississippi -----	2,801	895,000	153.0
5. Arkansas -----	2,645	895,000	162.0
United States -----	33,634	10,949,000	155.7

Imports and exports of cotton (unmanufactured) for the last four years:

Calendar year	Imported		Exported		
	Pounds	Value	Bales	Pounds	Value
1914 -----	158,694,088	\$23,074,323	6,320,485	3,285,408,833	\$343,904,905
1915 -----	202,785,138	25,879,617	8,358,992	4,362,194,195	417,013,008
1916 -----	192,386,262	37,051,534	7,029,721	3,635,277,180	545,228,684
1917 -----	138,615,455	41,780,796	4,818,990	2,476,114,716	575,306,634

Tobacco (24 States).

State	Acreage	Production, pounds	Average per acre, pounds
1. Kentucky -----	474,000	426,600,000	900.0
2. North Carolina -----	325,000	204,750,000	630.0
3. Virginia -----	185,000	129,500,000	700.0
4. Ohio -----	103,200	99,072,000	960.0
5. Tennessee -----	101,000	81,810,000	810.0
United States -----	1,446,600	1,196,451,000	827.1

Imports and exports of tobacco (unmanufactured) for the last four years:

Calendar year	Imports		Exports (domestic)	
	Pounds	Value	Pounds	Value
1914 -----	57,406,522	\$34,772,047	347,295,269	\$43,906,364
1915 -----	41,304,197	21,023,642	433,672,897	32,463,492
1916 -----	49,472,869	26,856,095	477,407,864	62,628,459
1917 -----	57,959,825	33,471,754	254,226,648	45,541,112

MINOR CROPS.*

Kaffirs, Grain Sorghums, Milo Maize (6 States).

State	Acreage	Production, bushels	Average per acre, bushels
1. Kansas -----	2,126,000	31,890,000	15.0
2. Oklahoma -----	1,400,000	22,400,000	16.0
3. Texas -----	1,284,000	14,766,000	11.5
4. New Mexico -----	195,000	3,510,000	18.0
5. Arizona -----	60,000	1,980,000	33.0
6. Colorado -----	88,000	1,320,000	15.0

*Some other states produce comparatively small quantities of the above crops.

California also farms this crop to a lesser extent.

Broom Corn (5 States).

State	Acreage	Production, tons	Average per acre, tons
1. Oklahoma -----	175,000	26,250	0.220
2. Kansas -----	60,000	12,000	0.200
3. Illinois -----	30,000	8,250	0.275
4. Colorado -----	30,000	4,650	0.112
5. Texas -----	4,000	688	0.172

California also farms this crop to a lesser extent.

Flaxseed (11 States).

State	Acreage	Production, bushels	Average per acre, bushels
1. North Dakota -----	965,000	3,764,000	3.9
2. Minnesota -----	220,000	1,980,000	9.0
3. Montana -----	422,000	1,266,000	3.0
4. South Dakota -----	140,000	980,000	7.0
5. Kansas -----	34,000	238,000	7.0

Hemp (12 States)

In the production of hemp in 1917, Kentucky had 18,000 acres; Wisconsin, 7,000 acres; California and North Dakota, 5,000 each. The acreage in California has increased, being only 600 acres in 1915, and 1,600 in 1916. Seven other states have a few hundred acres each.

Hops (4 States).

State	Acreage	Production, pounds	Average per acre, pounds
1. California -----	11,900	15,708,000	1,320
2. Oregon -----	10,000	5,000,000	500
3. Washington -----	3,500	4,200,000	1,200
4. New York -----	4,500	2,880,000	640

Beans Now an Important Crop.

The acreage in beans in 1910 was 157,825, producing beans of the value of \$6,292,955; the acreage in dry peas was 2,959, valued at \$101,016.

Lima beans are only grown in any quantity in five counties, and have come into great favor in recent years. They were first cultivated in Carpinteria Valley about forty years ago, and after 1884 the growing extended. The bulk of the crop is raised in Ventura County; Orange, Santa Barbara, Los Angeles and San Diego counties being next in order. San Diego County, however, is increasing its acreage in lima beans very fast. Some of the best sections yield 40 to 45 sacks per acre. The average yield is 14 sacks of 80 pounds, or 1,120 pounds to the acre, but in the best sections 35 or even 40 sacks of 80 pounds to the acre have been raised.

In Ventura County the yield is not less than twenty 80-pound sacks to the acre, whereas 12 sacks is considered a good yield in Orange County. The commercial production of dried lima beans is practically confined to the southern coast district of California, very few being produced in other states. In October, owing to wet or damp weather, considerable damage was done in the southern districts to small white beans and lima beans, but the loss was more than made up in price, as the market at the beginning of the season ranged from \$4.25 to \$15.50 per 100 pounds later.

Beans are packed in sacks of varying weights, depending upon the varieties. Blackeyes are lighter than some others and are generally packed in sacks of from 75 to 80 pounds; pinks in sacks of 85 or 100 pounds; white beans in sacks of 90 or 100 pounds.

During the past few years limas have been packed in sacks of 100 pounds, though some still are packed in 80 pound sacks.

The other varieties of beans are grown mostly in the delta region of the Sacramento and San Joaquin rivers. The pink variety is grown generally in all the bean sections of California; the large white or Lady Washington in the Sacramento and San Joaquin River sections; the Blackeye is in reality a cowpea and is grown all over the state, but principally in the southern counties of Ventura, Riverside, Los Angeles, Orange, and San Diego; and they are also grown in the San Joaquin Valley. The bayo is not grown extensively, and is produced in a limited area of the choicest river bottom lands in the Sacramento and San Joaquin Valley sections; the small white, or navy bean, is a late variety and grown mostly in the coastal counties of Monterey, San Luis Obispo and Santa Barbara. Large quantities are shipped to Boston, where they are prepared as "Boston baked beans."

Castor Beans.

Castor beans were first grown in California over forty years ago, without profit, and have never been profitable since that time. They are not edible, either by man or stock, their only use being for making oil, and hitherto there have been no mills in the state making castor oil. This year, owing to the demand of this oil for airplanes, a California Castor Bean Association has been organized and is endeavoring to contract for the planting of 10,000 acres for the War Department, the government having guaranteed a price of \$3.50 per bushel of 46 pounds. Between 1860 and 1900 the castor bean was an important crop in certain sections of Oklahoma, Kansas, Missouri and Illinois, but during recent years its culture has been practically abandoned. The decline of the industry in the United States is attributed to the growing importance of other crops and the reduction in prices brought about by importations of castor beans from India.

The yield will depend much upon cultural conditions, upon the season, and the care exercised in harvesting and threshing the seed. Yields of 30 to 40 bushels per acre have been reported from Florida, South Carolina, Georgia, Texas and California. In the Middle West yields of 15 to 25 bushels per acre have been reported under favorable conditions. Much smaller yields will of course result if conditions are unfavorable.

Until recently the farm price for castor beans has been not far from \$1.00 per bushel. The increased demand for castor oil due to war conditions has caused the price of the beans to advance rapidly, and it is probable that high prices for castor beans will prevail until the end of the war. The normal market requirement in the United States for castor beans is about 1,000,000 bushels annually, but until present conditions change materially, a larger quantity will be needed.

In the United States castor beans are used in quantity only by manufacturers of castor oil. The principal castor-oil mills are located at Jersey City, N. J., Buffalo, N. Y., Toledo, O., and Grand Rapids, Mich. In general, the equipment and operation of a castor-oil mill resembles that of a cottonseed-oil mill or linseed-oil mill, but special and expensive equipment is necessary for the proper extraction of the oil from the castor beans. The best grade of oil is obtained from the beans by hydraulic pressure.

Soy Beans.

North Carolina and Tennessee are the two leading states in the production of soy beans, but they are not yet grown in California. Soy beans, introduced into the United States more than a hundred years ago, primarily for use as a forage crop, are in reality one of the most nutritious of the legumes when used as human food, according to specialists of the United States Department of Agriculture. These beans have been used for centuries as a staple article of diet in China and Japan and are coming to be used more generally in this country as consumers learn their food value and palatability. Since they furnish protein, which contains nitrogen for muscle building, and valuable fat, they are especially important to turn to as an emergency addition to the usual dietary or as substitutes for other foods furnishing protein and fat. Moreover, the fact that they contain no starch

makes them valuable for invalids who can not eat starchy foods. These beans may be grown easily in practically all sections of the country where corn is grown and give heavier yields than most other beans.

Soy beans have been so important for other purposes that until recently they have attracted little attention for food purposes in this country. They are now coming into their own for that purpose, however, and the acreage of soy beans has increased steadily in recent years. The dried beans may be purchased now in a number of markets in various parts of the country, often under the name of togo beans.

Where dried soy beans are available they may be baked with or without pork, like navy and other beans. They should be soaked over night and should be cooked longer than other kinds of beans. The cooking may be done economically in a fireless cooker of the sort provided with heating stones or plates; or on the ledge of the fire box inside the furnace if the house happens to be heated with one of this type.

Dried soy beans have been canned in considerable quantities during the past season, baked with pork, and are on sale in this form in numerous markets. Canned green soy beans, which may be compared with lima beans, also are on the market in some sections of the country. Both these canned products yield as high a proportion of energy and a higher proportion of protein than the canned beans with which they are most closely comparable, and so are more nourishing. Both are produced and handled usually at a lower cost than other beans and should, therefore, be obtainable at lower prices. They are not generally used as a human food in this country, although perfectly edible.

The amount of soy bean oil imported is as follows:

Year ending June 30	Pounds	Value
1914 -----	16,360,452	\$830,790
1915 -----	19,206,521	899,819
1916 -----	98,119,695	5,128,200
1917 -----	162,690,285	11,410,606

Beans and Peas Produced, 1850-1910.†
(From the Bureau of the Census.)

Year ending June 30	Beans, bushels	Peas, bushels
1850 -----	2,292	-----
1860 -----	165,574	-----
1870 -----	380,010	-----
1880 -----	378,971	40,806
1890 -----	713,480	32,364
1900 -----	658,515	57,299
1910 -----	3,323,608	57,468

†Beans and peas were reported as one product in 1850, 1860, and 1870.

The acreage in beans in 1910 was 157,825, producing beans of the value of \$6,292,955; the acreage in dry peas was 2,959, valued at \$101,016.

Beans have become one of the most important vegetable crops in the state.

In 1916 the market prices were the highest on record, ranging from \$4.25 at the beginning of the season to \$15.50 per hundred pounds. The average price on the entire crop was about \$7.50 to the grower, re-cleaned.

California Beans, 1912-1917.
(Bags.)

Variety	1912	1913	1914	1915	1916	1917
Limas*	1,200,000	1,050,000	1,500,000	1,800,000	1,750,000	1,225,000
Blackeyes	204,000	80,000	150,000	405,000	150,000	275,000
Large whites	63,000	115,000	100,000	155,000	350,000	625,000
Small whites	215,000	40,000	325,000	600,000	550,000	825,000
Bayos	65,000	60,000	75,000	85,000	125,000	125,000
Pinks	298,000	250,000	500,000	650,000	850,000	1,150,000
Cranberries						200,000
Garbanzos						25,000
Red kidneys						20,000
Teparys						70,000
Henderson bush						100,000
Reds						125,000
Miscellaneous	118,000	120,000	125,000	98,000	250,000	100,000
Totals	2,163,000	1,715,000	2,775,000	3,793,000	4,025,000	4,865,000

*On the basis of bags of 80 pounds, although bags of 100 pounds are increasing every year.

Imports and Exports of Beans, 1907-1917.

(Duty—Beans, 25 cents per bushel of 60 pounds; dried peas, 10 cents per bushel;

Year ending June 30	Exported†		Imported	
	Bushels	Value	Bushels	Value
1907	432,490	\$932,264	406,679	\$658,898
1908	306,939	708,201	1,657,401	2,406,935
1909	298,209	702,819	3,355,406	4,926,199
1910	365,721	973,231	1,015,157	1,621,207
1911	288,638	814,663	1,037,371	1,733,697
1912	341,268	1,011,466	1,004,980	1,857,220
1913	400,868	1,080,066	1,048,297	1,938,105
1914	314,655	875,493	1,634,070	2,955,663
1915	1,214,281	3,638,526	906,647	1,461,917
1916	1,760,383	5,914,198	662,759	1,288,084
1917	2,164,943	10,427,742	3,747,993	12,137,048

*For the production of dried beans and peas by counties, see page 116.

†In the exports dried peas are included in the total with beans.

SUGAR BEETS.

All the coast valleys of California are favorably situated, in respect to temperature, for the production of sugar beets, and the same may be said of certain lands in other parts of the state. In California there is a larger acreage that is well adapted to the growing of sugar beets than is found in any other state in the Union.

California Sugar Crops, 1899 and 1909.
(From the Reports of the Census.)

Product	Number of farms	Acres	Production		
			Amount	Unit	Value
Sugar beets—					
1899	863	41,242	356,535	tons	\$1,550,346
1909*	1,113	78,957	845,191	tons	4,820,582
Sorghum cane—					
Total cane, 1899					3,788
In 1899 cane grown	54	140	1,085	tons	
In 1899 cane sold as such			6	tons	10
In 1899 syrup made			8,671	gallons	3,778
Total cane, 1909					14,826
In 1909 cane grown	48	647	3,021	tons	
In 1909 syrup made	8		4,330	gallons	2,340

*Includes beets and cane used as forage.

The cultivation of the beet greatly improves the land. According to a university professor, the following was the average increase in ten years on one estate:

	Yield before beet culture (bushels) per acre	Yield after beet culture (bushels) per acre	Per cent increase because of beet culture
Wheat	24.5	41.3	68.6
Rye	28.4	40.8	43.7
Oats	61.8	75.3	21.8
Barley	23.2	43.5	87.5
Potatoes	218.6	238.0	8.97
Rape	23.2	48.8	110.0

The following table gives a complete list of beet sugar plants in California, with their names and the location of factories. It also shows the daily slicing capacity, expressed in tons of beets, for each factory.

Beet Sugar Companies and Factories of California in 1917.

Manufacturing companies in California	Factory location	Daily slicing capacity, tons of beets
Alameda Sugar Company	Alvarado, Alameda County	800
Los Alamitos Sugar Company	Los Alamitos, Orange County	700
Spreekels Sugar Company	Spreekels, Monterey County	4,000
Spreekels Sugar Company*	Manteca, San Joaquin County	1,200
Union Sugar Company	Betteravia, Santa Barbara Co.	600
American Beet Sugar Company	Chino, San Bernardino County	1,200
American Beet Sugar Company	Oxnard, Ventura County	3,000
Pingree Sugar Company	Corcoran, Kings County	600
Sacramento Valley Sugar Company	Hamilton City, Glenn County	700
Holly Sugar Company	Huntington Beach, Orange Co.	750
Anaheim Sugar Company	Anaheim, Orange County	600
Santa Ana Sugar Company	Santa Ana, Orange County	600
San Joaquin Valley Sugar Co.	Visalia, Tulare County	500
Southern California Sugar Co.	Santa Ana, Orange County	400
Pacific Sugar Corporation*	Tracy, San Joaquin County	600
Total		16,250

*These factories were built in 1917. The factory at Tracy operated, but the Manteca factory did not.

Beet Sugar, 1900-1917.

(Duty on beets, 15 per cent ad valorem; sugar beet seed free.)

Year	California production, pounds	Imported raw beet sugar	
		Pounds	Value
1900	60,638,000	701,539,452	\$14,800,609
1901	137,400,000	908,683,078	20,028,575
1902	147,535,000	255,030,219	4,202,044
1903	131,080,000	87,130,806	1,223,023
1904	118,394,000	2,414,454	50,525
1905	122,500,000	223,944,976	4,797,278
1906	178,000,000	48,548,919	1,032,040
1907	154,800,000	397,745,046	8,203,309
1908	195,000,000	221,036,900	5,401,378
1909	245,000,000	98,625,908	2,521,798
1910	289,493,000	1,148	43
1911	325,076,000	24,669,287	593,037
1912	317,363,000	6,504,260	239,484
1913	342,416,000	182,647,582	4,169,523
1914	338,135,600	2,367,708	70,829
1915	390,686,000	877,623	29,386
1916	549,078,000	2,050	174
1917	415,718,100	28,847	1,443

Sugar Beets and Beet Sugar Produced in California, 1906-1917.

Year	Number of factories in operation	Sugar beets			Sugar made (chiefly refined)	
		Area harvested, acres	Beets used for sugar, short tons	Average per acre, short tons	Short tons	Pounds
1906	8	60,141	671,571	11.17	92,740	185,490,000
1907	8	47,387	484,816	10.23	73,023	146,045,500
1908	8	62,302	647,085	10.39	89,890	179,780,000
1909	10	83,000	882,084	10.63	127,272	254,544,000
1910	8	90,500	923,100	10.20	139,890	279,780,000
1911	10	99,545	1,037,283	10.42	161,300	322,600,000
1912	11	111,416	1,004,328	9.01	158,904	317,808,000
1913	12	127,610	1,138,003	8.92	171,208	342,416,000
1914	10	104,000	1,062,000	10.4	169,004	338,008,000
1915	11	122,737	1,249,111	10.2	195,343	390,686,000
1916	11	144,808	1,125,595	10.37	274,539	549,078,000
1917	14	161,909	1,321,716	8.16	209,325	415,718,100

The quantity of beet sugar produced in the state in 1916 was the largest in the history of the industry. The amount of beet sugar produced in the United States during the last five years shows a steady increase until 1916, when bad weather reduced the expected yield.

Beet Sugar Production in United States, 1911-1917.

Year	Number of factories	Acreage	Beets used, short tons	Sugar made, short tons
1911	66	473,877	5,062,333	599,500
1912	73	555,300	5,224,377	692,556
1913	71	580,006	5,659,462	733,401
1914	60	483,400	5,288,500	722,054
1915	67	624,000	6,462,000	874,220
1916	74	665,308	5,919,673	820,657
1917	91	664,797	5,625,545	765,207

Payment for sugar beets is made to the growers according to the weight of the beets without tops. An estimated amount of tare on account of dirt, improperly topped beets, etc., is deducted from the gross weight of the topped beets as delivered by growers. For the past four years the value of the beet crop to growers has ranged from \$30,000,000, to \$44,192,000 in 1917, compared with \$38,139,000 in 1916.

Some time elapses between the delivery of the beets and their use in the factory. The harvesting season may close from six to eight weeks earlier than the end of the sugar-making season. During this period beets lose in weight by drying, which causes some loss to the growers.

Sorghum Syrup, 1860-1910.

Sorghum was first introduced into the United States in 1853. Tennessee, Missouri and Kentucky are the largest producers. The following table shows the production in California from 1860 to 1910:

Year	Gallons
1860	552
1870	333
1880	2,459
1890	1,670
1900	8,671
1910	4,330

RICE.

If its importance as a food product is to be measured by the number of persons who consume it, rice must, without a doubt, be considered the greatest cereal, as it is more widely and generally used as a food material than any other. Half a century ago experiments were made in the cultivation of rice in California, but they were not successful. In 1860, small quantities were raised in Alameda, Tehama, San Mateo, Santa Cruz and Sonoma counties, but the total amount produced was only 2,140 pounds.

The successful introduction of this crop is dependent upon an abundant supply of water, which must always be available during the growing season. The soil area adapted to rice in this valley is sufficiently large to produce many times the 55,000,000 pounds of cleaned rice which are consumed each year on the Pacific coast. How much of this area has sufficient available water for proper irrigation is uncertain, though for a good portion of it there is apparently an abundant supply. Increase in the rice acreage should therefore be made with care.*

Its culture has opened up a new industry for lands which have hitherto been deemed unfit for anything but wheat, on account of the adobe conditions of the soil. The time of harvest varies, according to the variety, from August to November. Of the varieties of rice grown in California in 1917, 94 per cent was Japanese, 3 per cent of Blue Rose, and 3 per cent of Italian.

Rice was grown successfully in the northern part of Kern County in 1912 as an experiment on heavily laden alkali land which had hitherto been regarded as practically worthless. From 15 acres 349 sacks, weighing from 100 to 110 pounds, were produced.

*Report on Rice Growing, Circular No. 97, U. S. Department of Agriculture.

The following is the acreage of rice by counties in 1915 to 1917:

Rice Acreage by Counties, 1915.

Sacramento Valley	Acres	San Joaquin Valley	Acres
Butte County	15,200	San Joaquin County	150
Glenn County	500	Stanislaus County	200
Colusa County	8,750	Merced County	45
Yolo County	1,500	Fresno County	1,120
Yuba County	1,990	Tulare County	400
Shasta County	5	Kings County	300
Sutter County	850	Kern County	900
Solano County	180	Imperial County	10
		Ventura County	10
Total	28,975	Total	3,135

Total acreage in the state 32,110

Rice Acreage by Counties, 1916.

Sacramento Valley	Acres	San Joaquin Valley	Acres
Butte County	21,000	San Joaquin County	100
Colusa County	16,100	Fresno County	280
Yolo County	12,600	Kern County	1,110
Glenn County	8,100	Tulare County	490
Yuba County	1,200	Kings County	410
Sutter County	2,600	Stanislaus County	810
Solano County	200		
		Total	65,000

Average yield per acre, 2,400 pounds; maximum, 5,000; minimum, 1,750 pounds.
Price, average approximately, \$1.90 per hundred to growers.

Rice Acreage by Counties, 1917.

Sacramento Valley	Acres	San Joaquin Valley	Acres
Butte County, about	18,000	Imperial County	200
Yolo County	18,800	San Joaquin County	175
Glenn County	16,500	Stanislaus County	500
Colusa County	19,750	Fresno County	280
Yuba County	4,700	Kern County	875
Sutter County	730	Tulare County	350
Solano County	200	Kings County	250
		Total	81,310

The rice mills handle the complete process from the time the rice leaves the threshing machine on the field until it is packed in 2½-pound cotton bags ready for retail consumption, both in the polished and unpolished. The by-products such as bran and rice meal, are very nutritious for cattle and hog feed. Increased production and consumption of rice not only would expand a profitable industry, but the eating of more rice in the place of wheat would release a greater quantity of the bread grain for shipment to the allies.

The average per capita consumption of 6 pounds per year in the United States is smaller than that of many European countries where

rice is not even produced. Norway and Sweden consume over 9 pounds per capita, Russia over 11 pounds, England 27 pounds, France 34 pounds, Italy over 101 pounds, and Germany more than 93 pounds. In Japan and China rice is the most important article of diet. Every man, woman, and child in Japan, on the average, consumes 147 pounds of rice each year, and those in China, 158 pounds.

Most of the American per capita consumption of 6 pounds per year is used in the Southern states, in some of which it is on the table with at least one meal daily. In these states it holds the same place in the dietary that the potato does in the Northern states.

The 1916 crop amounted to about 1,200,000 bags of rough rice, which did not compare, so far as quality is concerned, with the previous crop, it being more starchy, and not giving the yield of the year previous, owing to weather conditions, and not being thoroughly dried.

Prices on the 1916 crop were quite low—lower than they were the year before by perhaps three-eighths of a cent—up until the rise that commenced about the first of March, after which prices advanced by leaps and bounds. With regard to the quality of the rice in 1916, compared with the previous year: there was a great deal of immature rice, much of this on account of the poor quality of seed sown by the farmer. The farmers in California have not yet arrived at the time of appreciation of the absolute necessity of using good seed.

In 1917 with scattered acreage the total was about 83,310. In the coming season of 1918, the planting may amount to 125,000 acres. The total yield of rice was about 2,500,000 bags of paddy or rough rice of 100 pounds per bag, the value of this paddy rice was about \$1,000,000. The price for paddy rice steadily advanced from about \$2.50 to \$3.00 per cwt. in November, 1917, to \$4.00 to \$4.50 per cwt. in March, 1918, and by April the stock was practically exhausted. Rice has been sold at over 5 cents, but this was for seed purposes.

HOPS.*

The leading states in the production of hops are California, Oregon, Washington and New York.

The total area devoted to the production of hops in California in 1909 was 8,391 acres, producing about 11,994,953 pounds of hops, valued at \$1,731,110. The climatic conditions and soil of California are more perfectly adapted to this crop than any other state in the Union, and its average production per acre is greater. The average production per acre in other hop-producing countries of the world has been estimated as follows: England, 905 pounds; Germany, 510 pounds; in the United States, 885 pounds, and in California, 1,469 pounds.

The cultivation of hops in California has increased rapidly, as shown by the following figures, but owing to the low prices several hundred acres were abandoned in 1915. The prices for 1916 opened at 12 cents to 15 cents, but few growers secured these figures, and prices fell to 5 cents to 8 cents, or less than cost of production. Because of adverse legislation and very low prices the hop growers in 1916 plowed out a good per-

*For further details regarding hops, see Report for 1913, pages 77-79.

centage of their hops and planted the land to more profitable crops. In 1917, 10,500 acres were planted to hops, which yielded a crop of 85,000 bales of 180 pounds net. This crop sold at prices ranging from 12 cents to 35 cents a pound, the average price in April, 1918, being about 17½ cents.

The leading counties in the production of hops in 1916 were:

County	Bales
Sacramento	72,000
Sonoma	30,000
Mendocino	16,000
Total.....	118,000

California Hop Crop, 1860-1910.
(From the Bureau of the Census.)

Year	Acres	Pounds
1860		80
1870		625,064
1880	1,119	1,444,077
1890	3,974	6,547,338
1900	6,890	10,124,660
1910	8,391	11,994,953

NOTE.—The acreage was not reported prior to 1880.

The highest and lowest prices per pound paid to growers during the last ten years have been as follows:

Year	Highest, cents	Lowest, cents
1908	14	7
1909	25	12
1910	30	15
1911	45	25
1912	22	13
1913	26	13
1914	18	5
1915	14	7
1916	12	5
1917	12	35

California Hops, Imports and Exports, 1901-1917.
(Duty, 16 cents per pound.)

Year	California crop		Exports		Imports	
	Bales*	Pounds	Pounds	Value	Pounds	Value
1901	48,000	9,360,000	14,963,676	\$2,466,515	2,606,708	\$851,008
1902	53,000	10,176,000	10,715,151	1,550,657	2,805,293	833,702
1903	56,000	10,752,000	7,794,705	1,909,951	6,012,510	1,808,491
1904	63,000	12,222,000	10,985,988	2,116,180	21,758,163	1,374,327
1905	67,500	13,095,000	14,858,612	4,480,666	4,339,379	1,980,804
1906	80,000	15,520,000	13,026,904	3,125,843	10,113,989	2,326,982
1907	82,000	16,072,000	16,809,534	3,531,972	6,211,983	1,974,900
1908	68,000	13,260,000	22,920,480	2,963,167	8,493,265	1,989,261
1909	69,000	12,765,000	10,446,884	1,271,629	7,386,574	1,337,099
1910	71,000	13,135,000	10,589,254	2,062,140	3,200,560	1,499,354
1911	87,000	16,095,000	13,104,774	2,130,972	8,557,531	2,706,600
1912	117,000	21,645,000	12,190,663	4,648,505	2,991,125	2,231,348
1913	118,500	21,922,500	17,591,195	4,764,713	8,494,144	2,852,865
1914	110,000	20,350,000	24,262,896	6,953,529	5,382,025	2,790,516
1915	115,000	21,275,000	16,210,443	3,948,020	11,651,332	2,778,735
1916	118,000	21,830,000	22,409,818	4,386,929	675,704	144,627
1917	85,000	15,300,000	4,874,876	775,621	236,849	59,291

*A bale averages from 185 to 190 pounds net, the variation depending upon the quality and the compression of the hops.

CALIFORNIA COTTON.

The culture of cotton in California has become of commercial importance within the past few years. Of the two counties now producing cotton, Imperial County had in 1916 an estimated acreage of 55,000 acres planted in the Imperial Valley, and 200 acres in the vicinity of Bard in the San Pasqual Valley, under the Yuma Irrigation Project; Riverside County has about 6,000 acres of cotton in the Palo Verde Valley. In all these localities cotton is grown under irrigation, by far the most extensive irrigation cotton agriculture in the United States.

Paying prices for cotton have prevailed except during the season of 1914-1915, when short-staple cotton sold at from 6 cents to 8 cents per pound. In other seasons from 10 cents to 14 cents per pound has been realized for short-staple cotton. As the yields from properly grown cotton in the Imperial Valley are a bale per acre, sometimes more, the income from cotton growing makes it a profitable business.

Short-staple cotton, the crop grown generally throughout the South, is planted to about two-thirds of the present acreage in the Imperial Valley. In 1912 Durango cotton, a long-staple American upland cotton similar to that grown in the Yazoo delta of Mississippi, was introduced to the Imperial Valley by the United States Department of Agriculture. This cotton has fiber from $1\frac{1}{8}$ inches to $1\frac{1}{4}$ inches in length and sells at from 2 cents to 5 cents per pound premium over the short-staple cotton. As it produces as well as the short-staple cotton and can be grown for a fraction of a cent more per pound it has commanded increased favor annually. The acreage to Durango cotton has been extended from 200 acres in 1912 to more than 15,000 acres in California last season.

Egyptian cotton is grown successfully in the Imperial Valley, and owing to the very high prices paid for it in Arizona during 1916, from one to three thousand acres will be planted the coming season at Bard.

Short-staple cotton is grown in the Palo Verde Valley, Riverside County. Yields in that valley are equally as good as those in the Imperial Valley.

This last season, cotton has been the best paying crop in Imperial Valley. The farmers are so encouraged that the acreage this coming season will be greatly increased, and there is no doubt but what cotton is now the most staple crop in that section of the state.

In the south, the production per acre has been greatly reduced since the commencement of the European war, due to lack of fertilizing agents. Imperial Valley has not suffered at all in this respect, as the land is automatically fertilized every time they irrigate with the water from the Colorado River. This fact alone has greatly assisted the farmers in that district. The yield per acre in the Imperial Valley is much larger than in any other state in the Union. In 1916 the average was 400 pounds per acre, the next highest being Virginia with 310 pounds, and Alabama the lowest with 79 pounds.

In 1915 about one-fifth of the crop was Durango long-staple, the balance short-staple. Bales average 500 pounds. The average price received for the short-staple cotton was 11 to 12 cents; for the Durango cotton 16 to 18 cents per pound. The quality of the cotton was superior to that of the 1914 season, owing to the fact that most of the 1915 crop was grown from seed, while the 1914 crop was largely grown from old stumps (Ratoon cotton) of the previous season's planting. The price was from 5 to 6 cents per pound better in 1915-1916 than in 1914-1915.

Durango cotton has had consistent supporters in the Imperial Valley since 1911, and the acreage since 1913 has had a gradual increase. Owing to peculiar local conditions, the fact that short-staple cotton has always been grown on more extensive acreages than the Durango is not a clear indication of the relative popularity of the Durango cotton. Properly grown Durango cotton yields as well in the Imperial Valley as does similarly grown short-staple. The expense of production is a fraction of a cent more per pound than for short-staple, so that in a market paying from 2 to 6 cents per pound more for the Durango cotton, the long-staple cotton is by far the more profitable.

The increase in the value in 1916 was largely due to the increased value of the staple, the average price received being between 18 and 25 cents per pound, depending on the staple of the cotton. A large proportion of the long-staple or Durango cotton was grown in the valley that year, and a very good premium was received for it on account of the fact that there was a shortage of long-staple cotton this year, largely caused by the increased demand for long-staple cotton in connection with the manufacture of tire fabric and high grade mechanical goods for export in connection with the European war; also on account of the difficulty in getting European cotton to this country on account of the shortage in shipping and the high war risk rates.

The large premium which has been paid for long-staple cotton this year will undoubtedly influence many to plant long fibre cotton this coming season in the valley. Farmers, however, should bear in mind the fact that it is more expensive to grow long-staple than short.

While the California cotton mills consumed from 8,000 to 10,000 bales of Imperial Valley cotton in 1916, a large portion of the valley's cotton was shipped to eastern mills, Japan being a very conservative buyer in the valley this season.

The grade was about the same in 1915, but the price ranged at a much higher level. Both cottons, the short variety and the Durango,

sold from 5 to 9 cents per pound over the previous season; the range in price on short in 1916 being from 11 cents to 20½ cents, and on Durango from 18 cents to 28 cents per pound. The Durango sold for more, above the short-staple, than it has heretofore, the reason being that the cotton is becoming better known to the general trade.

Estimated Cotton Crop of the Imperial Valley, 1909-1917.

(In bales of 500 pounds.)

Year	Acres	Bales		Average price per lb.		Value of cotton	Value of cotton and seed
		Short staple	Durango or long staple*	Short staple	Long staple		
1909	324	350		14		\$12,810	
1910	9,000	5,986		14		419,000	
1911	12,000	9,790		10		489,500	\$549,500
1912	9,000	8,215		12	17	492,900	552,900
1913	20,000	19,000	1,000	13	16	1,315,000	1,495,000
1914	60,000	40,000	5,000	7	12.5	1,700,000	2,075,000
1915	40,000	21,000	6,000	12	16.5	1,755,000	2,205,000
1916	90,000	35,000	20,000	20	26	6,100,000	7,300,000
1917	120,000	45,000	25,000	28	35	9,600,000	11,387,500

*Estimated.

The figures include the cotton produced on the Mexican side of the border, which is largely operated by the residents of Imperial County, and is ginned and marketed there.

In 1917 the acreage in Imperial Valley, (California and Mexico) was estimated at about 120,000 and the total balage at 65,000. Much cotton is being ratooned this season, that is, from the roots of last season's crop. This is done in order to get early fruitful growth to escape disastrous injury from possible water shortage. The coming season some 3,500 acres of Pima Egyptian will be planted for the first time on a commercial basis. Water shortage in July and August, 1917 seriously injured the crop, some estimates being as high as 75%.

On account of the extraordinary prices paid, the crop will probably net the growers ten to twelve million dollars. The lowest price paid to growers was about 22 cents a pound for short-staple, and went as high as 33 cents, while the long-staple ranged in price from 30 to 80 cents a pound.

SILK.

The production of silk in California is named in the Census of 1870, when 3,587 pounds of silk cocoons were reported. In 1880 a state silk culture association was organized but later became dormant until revived in 1908 as the Ladies' Silk Culture Society of California. The society has established a farm at Rutherford, Napa County, where they have nearly 800 white and red mulberry trees, and distribute cuttings free to all parts of the state. A ten thousand dollar building has been constructed for hatching worms, and other purposes.

Silkworm eggs have been secured from France and Italy, and in the course of time it is hoped that the work will develop into an important industry. At the San Francisco Land Show in October, 1913, a gold medal and the blue ribbon were awarded for raw silk produced at the Rutherford farm.

The only silk mill manufacturing silk thread west of Michigan is at Petaluma, Sonoma County, which has a monthly capacity of an average of 5,000 pounds of gum silk and about an equal amount of finished silk. This would be 60,000 pounds a year.

In Petaluma they start with the raw silk as wound from the cocoon; the winding of raw silk from the cocoon is done exclusively in China and Japan. This raw silk so wound into skeins is continued through the process to the gum state, which is its condition when it comes off the machinery prior to dyeing to the several shades necessary for the range of colors which are produced.

The production consists of spool silks for domestic use for dry goods stores, sewing silk for manufacturing purposes such as making of boots, shoes, clothing, hats, gloves and so on; also embroidery silks for all purposes and knitting silk for the manufacturing of garments, hats, caps; tram silk for the covering of cords, braids, and the manufacturing of surgical goods—in fact, all kinds of silk threads for whatsoever use.

The Seriterre Company, a corporation organized for the purpose of engaging in silk culture on a commercial scale in California, has been authorized by the Commissioner of Corporations. The company's common stock has been issued in exchange for an agreement to transfer to it approximately 800 acres of land near Wyandotte, Butte county, and certain secret processes for the treatment of silkworm eggs and silk waste. The company proposes to plant about 500 acres of mulberries and to install a filature mill of eight basins for reeling silk from cocoons.

It is stated, however, on good authority that there is no chance of sericulture being revived in California as there is no profit in raising silk. What is required is more factories to manufacture the goods. It is only in the Orient, and Italy and France where labor is poorly paid, that silk raising can be made profitable.

A number of attempts have been made in California to establish the silk industry, but so far none have proven successful from a commercial standpoint. At the present time little or nothing is being done. While the climatic conditions in many parts of California are ideal for the successful raising of silk worms, yet there are other conditions that are not so favorable as, for instance, labor, which is scarce and much higher in price than prevails in European countries.

TOBACCO.

For several years extensive and exhaustive experiments in the production of tobacco from Turkish seed were carried on at the Exter Tobacco Ranch in Tulare County. There have been a number of types of tobacco experimented with, but the types that have been attended with the greatest success are such as are suitable for cigarette manufacture. The tobacco raised during recent years has been produced about equally by Fresno and Tulare counties, the total quantity being 7,500 pounds in 1909; 15,000 in 1910; 45,000 in 1911, and 150,000 in 1912. The 1912 crop sold at from 30 cents to 60 cents per pound; most of it averaged 47½ cents. Some tobacco is also grown in Los Angeles County and the southern part of the state.

In 1913 the crop of leaf tobacco amounted to about 175,000 pounds, some of which it is stated was purchased by the Eastern market. According to a leading authority, the crop was not as good as in former years, owing to the farmers planting too large an acreage and not being familiar with the culture of tobacco. The growers in Fresno County, where a considerable quantity has been produced, have experienced much difficulty in disposing of their crop at a fair price, so the cultivation of tobacco declined. Owing to the war, a revival of the industry appears to be in progress. In 1917, 14 acres of tobacco was raised in Fresno County, near Sanger, producing 12,000 pounds, which was sold to an Eastern buyer at 80 cents a pound. The crop produced about 1,000 pounds an acre. This success will probably result in a much larger planting during the coming year.

CALIFORNIA FARM CROPS FOR TWENTY-FIVE YEARS, 1892-1917.

BARLEY, BUCKWHEAT, CORN, OATS, RYE, WHEAT, POTATOES, HAY.*

(Compiled from the Reports of the United States Department of Agriculture.)

California Barley Crops, 1892-1917.

Year	Acreage	Average yield per acre, bushels	Production, bushels	Average farm price, December 1	Farm value, December 1
1892	845,240	24.0	20,285,760	\$0 47	\$9,534,307
1893	780,716	22.5	17,116,110	42	7,188,766
1894	787,895	15.2	11,216,004	45	5,047,202
1895	937,127	20.3	19,023,678	40	7,609,471
1896	918,384	21.6	19,837,084	48	9,521,805
1897	881,649	23.0	20,277,927	54	10,950,081
1898	872,833	10.5	9,164,746	65	5,957,085
1899	855,376	26.0	22,239,776	50	11,119,888
1900	889,591	16.7	14,856,170	43	6,388,153
1901	1,069,785	26.0	28,334,410	41	11,617,108
1902	1,144,274	26.0	29,751,124	63	18,743,208
1903	1,201,488	25.7	30,878,242	61	18,835,728
1904	1,237,533	22.7	28,091,999	60	16,855,199
1905	1,237,533	21.5	26,606,960	59	15,698,106
1906	1,425,000	27.2	38,760,000	54	20,930,400
1907	1,040,000	28.9	30,056,000	78	23,444,000
1908	1,082,000	23.5	25,427,000	74	18,816,000
1909	1,180,000	26.5	31,270,000	74	23,140,000
1910	1,500,000	31.0	46,500,000	55	25,575,000
1911	1,450,000	28.0	40,600,000	85	34,510,000
1912	1,392,000	30.0	41,760,000	70	29,232,000
1913	1,275,000	26.0	33,150,000	68	22,542,000
1914	1,402,000	30.0	42,060,000	59	24,815,000
1915	1,360,000	29.0	39,440,000	62	24,453,000
1916	1,190,000	28.0	33,320,000	96	31,654,000
1917	1,350,000	29.0	39,150,000	1 20	46,980,000

*For production of these crops by counties, see pages 112-117.

Duty on Imported Cereals, Potatoes, and Hay.

Barley.....15c per bushel of 48 pounds	Oats.....6c per bushel of 32 pounds
Wheat.....free	Rye.....free
Buckwheat.....free	Potatoes.....free
Corn.....free	Hay.....\$2.00 per ton
Wheat flour.....free	

NOTE.—The imports of breadstuffs are comparatively small. The crops of barley, buckwheat, corn, oats, rye, wheat, potatoes and hay, from 1868-1903, will be found in the Report for 1913, pages 88-95.

California Buckwheat Crops, 1890-1896.

Year	Acreage	Average yield per acre, bushels	Production, bushels	Average farm price, December 1	Farm value, December 1
1890	677	14.5	9,816	\$0 73	\$7,166
1891	683	15.3	10,450	58	8,051
1892	697	16.5	11,500	53	6,141
1893	691	21.5	14,857	71	10,548
1894	691	18.0	12,438	45	5,597
1895	726	30.0	21,780	64	13,939
1896	690	18.7	12,903	39	5,032

NOTE.—The production of buckwheat is so small that it has not been recorded in recent years, the area being only a few hundred acres. The crop is raised in only twenty-four states. Very little is exported. The acreage in buckwheat in California in 1910 was only 849, producing 14,681 bushels.

California Corn Crops, 1892-1917.

Year	Acreage	Average yield per acre, bushels	Production, bushels	Average farm price, December 1	Farm value, December 1
1892	72,500	30.3	2,197,000	\$0 55	\$1,208,213
1893	71,775	37.1	2,275,268	50	1,137,634
1894	66,751	19.3	1,288,294	57	734,328
1895	65,416	34.5	2,256,852	53	1,196,132
1896	59,529	37.0	2,202,573	53	1,167,364
1897	60,720	31.5	1,912,680	56	1,071,101
1898	45,540	26.0	1,184,040	62	734,105
1899	56,925	27.0	1,536,975	60	922,185
1900	54,079	25.0	1,351,975	61	824,705
1901	59,703	31.0	1,850,793	68	1,253,539
1902	60,300	30.5	1,839,150	77	1,416,146
1903	57,888	30.7	1,777,162	74	1,315,100
1904	54,415	28.0	1,556,269	78	1,213,890
1905	56,592	32.0	1,810,944	76	1,376,317
1906	57,158	34.9	1,994,814	67	1,336,525
1907	54,000	34.0	1,836,000	85	1,561,000
1908	50,000	32.0	1,600,000	88	1,408,000
1909	50,000	34.8	1,740,000	91	1,583,000
1910	50,000	37.5	1,875,000	80	1,500,000
1911	51,000	36.0	1,836,000	90	1,652,000
1912	52,000	37.0	1,924,000	85	1,635,000
1913	55,000	33.0	1,815,000	88	1,597,000
1914	60,000	36.0	2,160,000	87	1,879,000
1915	64,000	41.0	2,624,000	88	2,309,000
1916	64,000	32.0	2,048,000	1 24	2,540,000
1917	75,000	32.0	2,400,000	1 85	4,440,000

California Oat Crops, 1892-1917.

Year	Acreage	Average yield per acre, bushels	Production, bushels	Average farm price, December 1	Farm value, December 1
1892	67,829	29.3	1,987,000	\$0 40	\$794,956
1893	59,011	25.5	1,504,781	38	571,817
1894	57,831	35.6	2,068,784	44	905,865
1895	60,144	28.1	1,690,046	39	659,118
1896	58,941	31.0	1,827,171	44	803,955
1897	57,173	18.0	1,029,114	49	504,266
1898	58,888	33.0	1,943,304	50	971,652
1899	59,477	31.0	1,843,787	47	866,580
1900	60,072	24.6	1,477,771	46	679,775
1901	160,768	30.4	4,887,347	44	2,150,433
1902	168,806	30.5	5,148,583	51	2,625,777
1903	165,430	34.8	5,756,964	54	3,108,761
1904	167,084	34.1	5,697,564	57	3,247,611
1905	168,755	28.0	4,725,140	51	2,409,821
1906	163,692	31.5	5,156,298	52	2,681,275
1907	136,000	33.5	4,556,000	71	3,235,000
1908	200,000	33.5	6,700,000	67	4,489,000
1909	200,000	31.4	6,280,000	66	4,145,000
1910	200,000	37.0	7,400,000	50	3,700,000
1911	210,000	34.0	7,140,000	59	4,213,000
1912	200,000	39.0	7,800,000	55	4,290,000
1913	210,000	31.6	6,636,000	60	3,982,600
1914	220,000	35.0	7,700,000	53	4,081,000
1915	211,000	33.0	6,963,000	50	3,482,000
1916	200,000	32.5	6,500,000	72	4,680,000
1917	196,000	35.0	6,860,000	85	5,831,000

California Rye Crops, 1892-1917.

Year	Acreage	Average yield per acre, bushels	Production, bushels	Average farm price, December 1	Farm value, December 1
1892	28,800	11.5	331,200	\$0 67	\$221,904
1893	28,800	17.5	504,000	60	302,400
1894	29,376	13.2	387,763	60	232,658
1895	36,720	11.6	425,952	58	247,052
1896	38,556	14.5	559,062	60	335,437
1897	40,484	12.2	493,905	65	321,088
1898	40,079	9.0	360,711	70	252,456
1899	36,472	15.0	547,080	78	426,722
1900	38,660	13.0	502,580	58	291,496
1901	66,087	12.8	845,914	57	482,171
1902	67,409	12.0	808,908	75	606,681
1903	68,083	12.3	837,421	77	644,814
1904	67,402	7.6	512,255	78	399,559
1905	67,402	13.0	876,226	77	674,694
1906	62,684	12.8	802,355	71	569,672
1907	65,800	19.0	1,251,000	85	1,063,000
1908	66,000	12.0	792,000	88	697,000
1909	61,000	13.8	842,000	1 04	876,000
1910	7,000	17.0	119,000	86	102,000
1911	8,000	17.0	136,000	85	116,000
1912	8,000	17.6	141,000	90	127,000
1913	8,000	15.0	120,000	75	90,000
1914	8,000	17.0	136,000	85	116,000
1915	8,000	14.0	112,000	90	101,000
1916	8,000	13.0	104,000	1 16	121,000
1917*					

*None reported.

California Wheat Crops, 1892-1917.

Year	Acreage	Average yield per acre, bushels	Production, bushels	Average farm price, December 1	Farm value, December 1
1892	3,012,057	13.0	39,157,000	\$0 68	\$26,626,584
1893	2,620,490	13.3	34,852,517	53	18,471,834
1894	2,688,204	11.3	30,576,705	57	17,314,722
1895	3,084,446	13.0	40,097,798	60	24,058,679
1896	3,088,849	14.6	45,097,195	83	37,430,672
1897	3,239,402	10.0	32,394,020	83	26,887,037
1898	1,343,341	9.1	12,224,405	72	8,801,570
1899	2,393,185	14.1	33,743,909	62	20,921,223
1900	2,771,226	10.3	28,543,628	58	16,555,304
1901	2,672,547	13.0	34,743,111	60	20,845,847
1902	2,052,679	10.9	22,374,201	80	17,899,361
1903	1,868,410	11.2	20,926,192	87	18,205,787
1904	1,618,043	10.8	17,474,864	88	15,377,880
1905	1,886,238	9.3	17,542,013	82	14,384,451
1906	1,572,144	17.1	26,883,662	75	20,162,746
1907	1,368,000	15.0	20,520,000	98	20,110,000
1908	800,000	14.6	11,680,000	1 02	11,914,000
1909	825,000	14.0	11,550,000	1 11	12,820,000
1910	550,000	18.0	9,900,000	94	9,306,000
1911	480,000	18.0	8,640,000	88	7,603,000
1912	370,000	17.0	6,290,000	93	5,850,000
1913	300,000	14.0	4,200,000	95	3,990,000
1914	400,000	17.0	6,800,000	1 04	7,072,000
1915	440,000	16.0	7,040,000	95	6,688,000
1916	350,000	16.0	5,600,000	1 52	8,512,000
1917	375,000	19.8	7,425,000	2 00	14,850,000

NOTE.—All winter wheat; no spring wheat grown in California.

California Potato Crops, 1892-1917.

Year	Acreage	Average yield per acre, bushels	Production, bushels	Average farm price, December 1	Farm value, December 1
1892	38,354	75	2,876,550	\$0 59	\$1,697,164
1893	37,203	96	3,571,488	50	1,785,744
1894	26,786	52	1,392,872	49	682,507
1895	25,179	75	1,888,425	48	906,444
1896	22,158	80	1,772,640	53	939,499
1897	21,493	105	2,256,765	49	1,105,815
1898	20,418	95	1,939,710	55	1,066,840
1899	26,543	119	3,158,617	63	1,969,929
1900	26,808	104	2,788,032	53	1,477,657
1901	45,259	101	4,571,159	77	3,519,792
1902	47,975	118	5,661,050	58	3,283,409
1903	46,536	130	6,049,680	66	3,992,789
1904	47,001	129	6,063,129	67	4,062,296
1905	50,291	165	8,298,015	67	5,559,670
1906	50,291	125	6,286,375	74	4,651,918
1907	48,000	145	6,900,000	90	6,264,000
1908	49,000	107	5,243,000	77	4,037,000
1909	60,000	130	7,800,000	77	6,006,000
1910	70,000	130	9,100,000	85	7,735,000
1911	72,000	135	9,720,000	90	8,748,000
1912	78,000	130	10,140,000	65	6,591,000
1913	68,000	119	8,092,000	70	5,664,000
1914	75,000	138	10,350,000	70	7,245,000
1915	78,000	130	10,140,000	75	7,605,000
1916	75,000	141	10,575,000	1 40	14,805,000
1917	105,000	145	15,225,000	1 50	22,838,000

California Hay (Tame) Crops, 1892-1917.

Year	Acreage	Average yield per acre, tons	Production, tons	Average farm price, December 1	Farm value, December 1
1892	1,617,232	1.50	2,425,848	\$8 76	\$21,250,428
1893	1,681,921	1.69	2,842,446	7 87	22,370,050
1894	1,665,102	1.93	3,213,647	9 50	30,529,647
1895	1,681,753	1.66	2,791,710	7 06	19,709,473
1896	1,732,206	1.65	2,858,140	6 35	18,149,189
1897	1,697,562	1.60	2,716,099	9 00	24,444,891
1898	1,459,903	1.60	2,335,845	14 25	33,285,791
1899	1,708,087	1.63	2,784,182	8 00	22,273,456
1900	793,491	1.51	1,708,171	8 15	22,071,594
1901	550,325	1.82	1,001,592	7 92	7,932,609
1902	558,828	1.81	1,006,049	9 41	9,466,921
1903	550,270	2.08	1,144,562	11 66	13,345,593
1904	583,266	2.03	1,184,071	10 41	12,326,179
1905	589,119	2.40	1,413,886	10 05	14,209,554
1906	612,684	1.85	1,133,465	11 25	12,751,481
1907	637,000	1.75	1,115,000	12 50	13,938,000
1908	605,000	1.35	817,000	13 25	10,825,000
1909	650,000	1.70	1,105,000	11 50	12,708,000
1910	2,400,000	1.83	4,392,000	9 60	*42,163,000
1911	2,500,000	1.75	4,375,000	10 90	*47,688,000
1912	2,500,000	1.53	3,825,000	13 70	*52,402,000
1913	2,400,000	1.50	3,600,000	13 50	48,600,000
1914	2,700,000	1.95	5,265,000	8 20	43,173,000
1915	2,350,000	1.80	4,230,000	11 20	47,376,000
1916	2,500,000	1.75	4,375,000	12 60	55,125,000
1917	2,400,000	1.90	4,560,000	19 20	87,552,000

*Including forage.

TABLE XXVI.
Value of All Crops.
(From Census Reports in 1909.)

County	Cereals	Other grains and seeds	Hay and forage	Vegetables	Fruits and nuts	All other crops	Total
Alameda	\$394,907 00	\$31,257 00	\$1,547,119 00	\$810,628 00	\$860,977 00	\$686,079 00	\$4,276,967 00
Alpine	25,833 00	8 00	49,117 00	3,201 00	1,444 00	3,483 00	83,206 00
Amador	55,405 00	90 00	229,982 00	41,583 00	59,599 00	63,651 00	452,270 00
Butte	536,107 00	767 00	806,725 00	55,314 00	797,893 00	147,699 00	2,364,515 00
Calaveras	7,881 00	755 00	217,191 00	53,063 00	53,968 00	71,890 00	406,168 00
Colusa	1,578,543 00	36,023 00	340,462 00	30,458 00	129,389 00	49,424 00	2,164,299 00
Contra Costa	604,085 00	104,487 00	1,617,610 00	1,125,668 00	499,436 00	80,818 00	4,082,064 00
Del Norte	8,877 00	164 00	85,763 00	10,605 00	2,878 00	3,665 00	111,962 00
El Dorado	15,189 00	120 00	196,638 00	41,960 00	143,924 00	471,514 00	799,187 00
Fresno	510,033 00	13,685 00	1,702,818 00	108,690 00	5,279,794 00	376,147 00	7,991,187 00
Glenn	906,796 00	700 00	327,008 00	13,644 00	35,661 00	64,101 00	1,350,910 00
Humboldt	117,802 00	19,249 00	893,913 00	175,817 00	141,493 00	90,151 00	1,438,425 00
Imperial	755,289 00		802,990 00	295,389 00	26,864 00	20,876 00	1,901,358 00
Inyo	186,416 00	3,496 00	252,610 00	57,314 00	44,047 00	18,760 00	532,643 00
Kern	500,973 00	13,580 00	953,044 00	96,968 00	159,698 00	78,992 00	1,803,255 00
Kings	550,869 00	20,704 00	1,171,101 00	140,137 00	1,219,568 00	77,735 00	3,180,114 00
Lake	129,857 00	17,641 00	196,995 00	44,701 00	90,001 00	38,601 00	517,796 00
Lassen	214,275 00	20,267 00	582,371 00	51,047 00	16,304 00	13,685 00	897,949 00
Los Angeles	806,507 00	218,428 00	3,430,688 00	1,253,093 00	6,731,532 00	2,278,626 00	14,720,864 00
Madera	1,220,003 00	900 00	290,258 00	27,995 00	126,124 00	21,138 00	1,686,418 00
Marin	19,766 00	15 00	425,967 00	42,916 00	31,816 00	13,883 00	534,383 00
Mariposa	18,515 00	1,430 00	109,699 00	28,024 00	43,025 00	29,939 00	290,632 00
Mendocino	175,678 00	927 00	526,690 00	121,941 00	166,534 00	540,218 00	1,531,986 00
Merced	1,691,566 00	11,251 00	1,355,098 00	187,563 00	147,964 00	90,142 00	3,423,574 00
Modoc	329,318 00	59,506 00	621,177 00	96,574 00	49,894 00	17,569 00	1,176,038 00
Mono	5,023 00	552 00	85,083 00	13,396 00	3,068 00	665 00	107,757 00
Monterey	1,695,220 00	57,676 00	1,125,740 00	330,296 00	498,763 00	677,840 00	4,326,535 00
Napa	168,471 00	6,224 00	465,362 00	126,348 00	766,745 00	104,292 00	1,637,442 00
Nevada	3,101 00	58 00	159,879 00	54,534 00	89,771 00	78,963 00	386,326 00
Orange	562,563 00		976,896 00	540,864 00	2,497,794 00	944,517 00	6,176,337 00
Placer	104,677 00		194,464 00	52,253 00	1,818,731 00	143,294 00	1,813,419 00
Plumas	74,736 00		299,817 00	21,772 00	3,872 00	32,722 00	432,219 00
Riverside	895,051 00	10,180 00	1,624,675 00	133,199 00	2,393,371 00	77,100 00	5,183,576 00
Sacramento	232,584 00	405,143 00	786,289 00	509,231 00	2,265,690 00	521,123 00	4,720,010 00
San Benito	263,063 00	133,590 00	963,249 00	34,425 00	261,891 00	54,932 00	1,741,165 00
San Bernardino	93,464 00	1,097 00	952,249 00	107,283 00	5,357,096 00	827,042 00	6,818,233 00
San Diego	458,836 00	91,268 00	1,110,127 00	174,809 00	941,767 00	84,269 00	2,861,136 00

San Francisco	3,238,787 00	8,310 00	1,460 00	190,965 00	920 00	127,271 00	323,926 00
San Joaquin	869,268 00	533,977 00	1,763,286 00	2,149,300 00	1,307,448 00	89,462 00	9,082,240 00
San Luis Obispo	260,218 00	517,452 00	681,866 00	141,685 00	155,084 00	116,427 00	2,481,812 00
San Mateo	585,079 00	36,742 00	981,266 00	459,470 00	78,272 00	204,408 00	1,385,371 00
Santa Barbara	170,190 00	869,908 00	771,922 00	244,205 00	538,671 00	558,671 00	3,668,250 00
Santa Clara	94,360 00	265,685 00	1,587,494 00	450,065 00	4,234,874 00	260,150 00	6,968,438 00
Santa Cruz	74,831 00	24,514 00	327,572 00	164,518 00	1,656,212 00	141,259 00	2,403,435 00
Shasta	25,769 00	1,719 00	410,532 00	85,381 00	248,442 00	118,890 00	989,785 00
Sierra	325,312 00	6,972 00	180,874 00	12,899 00	7,618 00	7,524 00	234,154 00
Siskiyou	1,292,481 00	108,660 00	851,817 00	130,317 00	41,170 00	70,306 00	1,426,384 00
Solano	50,998 00	809 00	572,822 00	84,857 00	1,465,713 00	20,958 00	3,569,996 00
Sonoma	1,313,180 00	17,411 00	1,170,906 00	185,749 00	2,094,905 00	1,008,116 00	4,451,378 00
Stanislaus	588,108 00	150,486 00	1,424,229 00	181,282 00	207,506 00	53,060 00	3,198,660 00
Sutter	246,157 00	756 00	419,331 00	57,868 00	470,965 00	63,149 00	1,749,422 00
Tehama	12,394 00	604 00	376,843 00	46,108 00	428,108 00	127,278 00	1,228,250 00
Trinity	1,442,685 00	17,311 00	167,713 00	58,211 00	11,874 00	18,549 00	269,345 00
Tulare	14,453 00	183 00	1,362,609 00	192,080 00	2,053,596 00	285,763 00	5,353,994 00
Tuolumne	347,954 00	183 00	167,810 00	39,885 00	31,044 00	44,121 00	297,496 00
Ventura	1,032,710 00	2,711,809 00	931,688 00	61,578 00	1,795,606 00	902,824 00	6,751,759 00
Yolo	134,728 00	112,847 00	984,115 00	126,359 00	677,099 00	341,520 00	3,274,450 00
Yuba		2,075 00	214,158 00	38,063 00	73,358 00	237,734 00	700,136 00
Totals	\$28,080,826 00	\$7,318,211 00	\$42,187,215 00	\$12,121,958 00	\$50,706,860 00	\$12,736,984 00	\$153,111,013 00

FARM CROPS BY COUNTIES.

CEREALS.

Barley, Corn, Oats, Rye, Wheat, Potatoes, Hay and Forage, in 1910.
(Compiled from the reports of the Bureau of the Census.)

TABLE XXVII.
Barley, Corn, and Oats.

County	Barley		Corn		Oats	
	Acres	Bushels	Acres	Bushels	Acres	Bushels
Alameda	12,650	473,575	508	13,097	1,725	53,745
Alpine	38	1,480			135	7,274
Amador	1,513	29,071	301	12,526	1,354	30,813
Butte	17,705	326,447	359	14,856	1,432	54,685
Calaveras	222	4,833	80	1,776	108	2,121
Colusa	89,985	1,949,228	706	16,619	771	12,556
Contra Costa	18,665	731,970	263	6,158	1,112	40,178
Del Norte	32	840	1	12	216	12,078
El Dorado	50	884	38	768	543	10,504
Fresno	32,132	694,234	1,422	37,726	1,554	20,027
Glenn	53,513	1,002,587	671	21,999	1,283	32,620
Humboldt	1,296	65,991	253	7,633	2,823	75,803
Imperial	36,986	908,916	690	14,419	30	372
Inyo	678	19,381	1,883	57,917	573	28,875
Kern	32,492	517,029	466	7,132	82	770
Kings	19,287	402,432	2,274	43,688	109	4,490
Lake	2,825	54,758	981	26,317	843	19,914
Lassen	3,244	63,471	4	93	977	25,647
Los Angeles	32,804	785,129	9,084	249,295	973	38,720
Madera	90,341	1,170,945	1	50	10,569	175,047
Marin	16	231	52	2,061	850	31,430
Mariposa	1,434	19,130	174	2,330	55	1,100
Mendocino	1,904	43,370	533	14,454	3,067	81,959
Merced	88,145	2,009,531	1,877	52,778	19,843	338,041
Modoc	8,650	227,473	6	209	728	22,138
Mono			4	160	42	3,000
Monterey	98,923	2,026,334	845	15,552	8,734	240,760
Napa	3,048	58,300	2,389	59,579	1,368	32,155
Nevada	30	249	5	208	119	1,559
Orange	27,384	671,526	3,054	91,643	995	30,858
Placer	1,318	17,128	27	1,055	3,030	40,397
Plumas	1,260	12,216			2,193	75,606
Riverside	56,946	958,526	372	12,421	3,767	85,540
Sacramento	4,599	75,575	795	34,089	4,174	66,949
San Benito	10,955	307,215	401	5,389	776	13,826
San Bernardino	3,260	85,480	920	14,839	436	16,594
San Diego	17,745	284,677	4,544	71,874	7,690	177,485
San Francisco						
San Joaquin	125,114	3,827,187	2,547	57,028	23,208	396,661
San Luis Obispo	26,370	667,718	1,509	24,015	1,139	35,884
San Mateo	917	26,001	11	164	16,125	462,566
Santa Barbara	26,294	683,605	1,240	25,979	9,494	233,171
Santa Clara	8,903	200,893	411	9,791	247	9,424
Santa Cruz	1,000	34,226	1,136	22,284	2,282	59,812
Shasta	1,298	21,551	163	4,655	723	8,915
Sierra	466	7,362	1	40	526	11,431
Siskiyou	4,262	60,118	89	3,165	3,148	93,076
Solano	41,647	1,263,357	91	935	1,306	25,711
Sonoma	361	8,795	1,681	44,331	468	20,154
Stanislaus	57,529	828,628	662	12,297	38,546	683,542
Sutter	27,457	491,720	761	22,373	8,568	56,823
Tehama	11,402	177,518	100	2,613	1,032	28,138
Trinity	39	1,210	51	1,833	160	2,667
Tulare	27,017	553,481	2,527	61,757	1,281	25,524
Tuolumne	579	5,055	7	156	425	7,447
Ventura	10,077	309,682	2,409	58,995	1,188	27,901
Yolo	49,530	1,236,884	201	5,123	515	12,365
Yuba	2,801	86,806	360	5,645	1,740	31,634
Totals	1,195,158	26,441,954	51,935	1,273,901	192,158	4,143,668

NOTE.—The acreage in buckwheat in 1910 was only 849, producing 14,681 bushels.

TABLE XXVIII.

Rye, Wheat, Kaffir Corn, and Milo Maize in 1910.

County	Rye		Wheat		Kaffir corn and Milo maize	
	Acres	Bushels	Acres	Bushels	Acres	Bushels
Alameda			1,075	21,535		10
Alpine			618	19,464		
Amador			298	5,169		
Butte			20,894	245,743	409	9,529
Calaveras			51	439	5	48
Colusa	77	987	11,168	221,549	2,598	48,418
Contra Costa			2,443	53,332		
Del Norte	2	112				
El Dorado	117	609	193	3,201		
Fresno	100	1,000	7,829	97,391	1,689	37,506
Glenn			17,541	232,911	162	4,972
Humboldt	14	181	134	3,370		
Imperial			125	2,559	9,789	213,781
Inyo			1,715	50,858		
Kern	30	1,500	12,924	139,375	2,813	45,828
Kings	5	100	8,684	141,978	3,931	95,010
Lake	7	140	2,563	46,131		
Lassen	526	6,018	9,938	153,863		
Los Angeles	100	745	6,760	59,866	106	2,145
Madera	100	1,400	39,468	370,499	343	4,948
Marin			57	1,155		
Mariposa	20	240	124	1,298		
Mendocino	3	61	3,906	59,195		
Merced	2,108	19,917	10,399	115,938	2,206	45,770
Modoc	406	6,633	9,362	195,924		
Mono	4	40	167	2,739		
Monterey			22,924	298,080	2	40
Napa			4,134	50,671	2	35
Nevada			95	1,279		
Orange			793	10,797	189	3,557
Placer			5,721	62,167	8	161
Plumas	704	5,250	766	10,313		
Riverside			11,817	159,434	44	580
Sacramento			10,704	103,728	2	43
San Benito	15	125	4,451	57,535		
San Bernardino			100	200	1,216	15,391
San Diego	6	50	7,268	82,012	17	282
San Francisco						
San Joaquin	1,843	17,476	24,786	310,537	2,968	32,786
San Luis Obispo			33,608	428,636	1	24
San Mateo			68	1,473		
Santa Barbara	3	30	2,300	27,892		
Santa Clara			376	10,198		
Santa Cruz			217	3,629		
Shasta			3,783	45,022		
Sierra	238	2,546	383	6,389		
Siskiyou	306	3,653	17,872	224,512		
Solano			20,924	391,753		
Sonoma			56	1,445		
Stanislaus	245	1,560	22,068	258,121	4,448	80,343
Sutter	40	250	14,537	176,750	352	7,750
Tehama			6,090	84,009		
Trinity	7	35	377	5,274		
Tulare	1	25	66,567	761,459	10,987	288,382
Tuolumne			277	5,373		
Ventura			2,896	67,366		
Yolo			13,452	237,393	21	710
Yuba			10,376	74,227		
Totals	7,027	70,683	478,217	6,203,206	44,308	938,049

TABLE XXIX.
Hay and Forage in 1910.

County	Hay and forage		County	Hay and forage	
	Acres	Tons		Acres	Tons
Alameda	80,735	118,534	Placer	16,034	13,404
Alpine	3,846	5,815	Plumas	30,152	34,038
Amador	14,449	17,961	Riverside	88,430	141,794
Butte	55,962	91,832	Sacramento	56,936	70,548
Calaveras	15,281	15,986	San Benito	64,064	84,380
Colusa	29,581	45,779	San Bernardino	42,608	76,359
Contra Costa	88,937	129,089	San Diego	82,049	86,559
Del Norte	3,062	10,131	San Francisco	103	150
El Dorado	12,115	11,685	San Joaquin	104,916	174,448
Fresno	95,265	214,659	San Luis Obispo	55,000	70,225
Glenn	25,143	37,594	San Mateo	19,060	28,962
Humboldt	30,018	119,613	Santa Barbara	50,070	70,146
Imperial	57,064	101,763	Santa Clara	83,553	127,006
Inyo	16,209	43,605	Santa Cruz	18,087	25,244
Kern	58,955	112,995	Shasta	85,341	46,573
Kings	87,749	15*	Sierra	20,622	22,234
Lake	12,653	19,069	Siskiyou	57,976	100,113
Lassen	62,758	92,634	Solano	39,693	57,028
Los Angeles	154,048	316,541	Sonoma	62,351	87,949
Madera	17,606	29,978	Stanislaus	69,482	178,643
Marin	17,460	37,972	Sutter	32,744	57,017
Mariposa	6,521	6,049	Tehama	24,343	44,069
Mendocino	27,015	38,085	Trinity	5,350	8,929
Merced	68,917	173,335	Tulare	91,595	188,810
Modoc	75,479	113,906	Tuolumne	8,624	9,584
Mono	6,947	12,118	Ventura	51,546	73,926
Monterey	83,647	109,848	Yolo	45,859	104,733
Napa	26,061	39,331	Yuba	17,010	18,188
Nevada	8,725	9,497			
Orange	47,651	87,655	Totals	2,533,347	4,327,130

TABLE XXX.
Potatoes and Sweet Potatoes in 1910.

County	Potatoes, acreage		Sweet potatoes, acreage	
	1900	1910	1900	1910
Alameda	1,854	1,655	1	2
Alpine	14	22		
Amador	108	125		1
Butte	152	171	2	21
Calaveras	65	147	2	
Colusa	98	439	10	6
Contra Costa	1,583	12,687	9	
Del Norte	97	69	1	
El Dorado	71	113		
Fresno	253	218	27	57
Glenn	86	24	4	1
Humboldt	1,173	1,108	1	
Imperial		60		9
Inyo	167	326	1	
Kern	672	339	22	31
Kings	46	194	9	19
Lake	141	182	7	
Lassen	286	259		
Los Angeles	2,799	4,140	218	342
Madera	12	75	1	2
Marin	724	435		
Mariposa	76	76		
Mendocino	588	616	3	
Merced	364	246	780	2,114
Modoc	245	346		
Mono	94	97		
Monterey	2,374	5,393	1	
Napa	149	530	2	
Nevada	123	106		1
Orange	1,318	1,770	75	484
Placer	28	72	1	
Plumas	114	100		
Riverside	688	309	20	57
Sacramento	5,036	1,406	117	
San Benito	147	205		
San Bernardino	406	444	25	55
San Diego	355	374	22	27
San Francisco	336	87		2
San Joaquin	9,895	21,313	88	19
San Luis Obispo	406	955	6	3
San Mateo	500	971	5	
Santa Barbara	826	1,524	7	28
Santa Clara	988	1,085		
Santa Cruz	1,007	1,080	1	1
Shasta	305	243	17	16
Sierra	55	46		
Slasklyou	478	655	2	
Solano	114	311		
Sonoma	3,260	2,279	2	
Stanislaus	30	207	31	1,647
Sutter	222	218	48	41
Tehama	150	112	6	30
Trinity	146	143		
Tulare	253	677	15	46
Tuolumne	107	114		2
Ventura	220	264	5	10
Yolo	206	402	12	31
Yuba	100	124	1	6
Totals	42,098	67,688	1,607	5,111

TABLE XXXI.
Dry Edible Beans and Peas in 1910.

County	Dry beans		Dry peas	
	Acres	Bushels	Acres	Bushels
Alameda	86	2,983	215	5,794
Alpine		3		
Amador	3	31		
Butte	27	150		
Calaveras	8	238	2	16
Colusa	1,063	20,067	14	180
Contra Costa	2,298	65,748		
Del Norte		10	4	60
El Dorado	1	30		
Fresno	9	155	6	172
Glenn				
Humboldt	18	892	517	9,056
Imperial				
Inyo	70	1,055	1	10
Kern	26	648		
Kings	21	576	15	75
Lake				
Lassen				
Los Angeles	3,874	106,011	14	311
Madera	15	333		
Marin	1	8		
Mariposa	62	409		
Mendocino	5	44	17	345
Merced	523	5,839		
Modoc	88	1,567		4
Mono	5	133	11	63
Monterey	1,504	29,532	154	5,218
Napa	6	61		
Nevada	1	18		
Orange	21,186	402,951	55	605
Placer				
Plumas				
Riverside	50	192		
Sacramento	7,801	166,852	90	1,708
San Benito	59	677		
San Bernardino				
San Diego	3,492	45,661	12	17
San Francisco				
San Joaquin	13,954	352,157	362	10,060
San Luis Obispo	11,169	207,674	85	1,209
San Mateo	466	14,435	186	4,085
Santa Barbara	22,355	267,385	12	67
Santa Clara	706	8,810		2
Santa Cruz	577	12,645	2	15
Shasta	49	685	3	15
Sierra				
Slasklyou	10	272	1	10
Solano	2,553	65,755		
Sonoma	7	83		
Stanislaus	373	4,395	415	5,175
Sutter	2,766	76,201		
Tehama	14	302		
Trinity	4	275		
Tulare	21	267	10	60
Tuolumne	3	61		
Ventura	58,744	1,813,156	756	13,151
Yolo	1,835	51,204		
Yuba	59	1,112		
Totals	157,987	3,328,218	2,959	57,468

TABLE XXXII.

All Other Vegetables in 1910.

(Except Potatoes, Sweet Potatoes, Dry Peas, and Beans.)

County	Acres	County	Acres
Alameda	7,459	Placer	408
Alpine	14	Plumas	97
Amador	315	Riverside	1,225
Butte	513	Sacramento	6,367
Calaveras	278	San Benito	183
Colusa	160	San Bernardino	813
Contra Costa	3,650	San Diego	1,131
Del Norte	29	San Francisco	466
El Dorado	197	San Joaquin	6,728
Fresno	1,391	San Luis Obispo	950
Glenn	115	San Mateo	3,210
Humboldt	675	Santa Barbara	1,588
Imperial	3,672	Santa Clara	4,241
Inyo	240	Santa Cruz	648
Kern	589	Shasta	577
Kings	674	Sierra	35
Lake	353	Siskiyou	673
Lassen	184	Solano	650
Los Angeles	13,385	Sonoma	954
Madera	256	Stanislaus	1,621
Marin	117	Sutter	303
Mariposa	193	Tehama	292
Mendocino	594	Trinity	192
Merced	380	Tulare	2,550
Modoc	549	Tuolumne	232
Mono	86	Ventura	588
Monterey	658	Yolo	1,066
Napa	428	Yuba	235
Nevada	281		
Orange	3,785	Total	79,163

Weights and Measures.

Long ton 2,240 pounds, short ton 2,000 pounds, 100 cubic feet equal to one ton. Number of pounds to the barrel: Wheat flour, rye flour, and corn meal, 196 pounds net weight.

The number of pounds to the bushel: Wheat, beans, dried peas, and potatoes, 60 pounds; barley and buckwheat, 48 pounds; corn, rye, onions and flaxseed, 56 pounds; oats, 32 pounds; malt, 34 pounds; and castor beans, 50 pounds.

TABLE XXXIII.
Sugar Beets in 1900 and 1910, by Counties.

County	1900		1910	
	Acres	Tons	Acres	Tons
Alameda	8,680	44,974	2,516	29,201
Alpine				
Amador				
Butte			711	6,977
Calaveras			1	1
Colusa	566	5,320	211	1,824
Contra Costa	524	3,688	40	250
Del Norte				
El Dorado				
Fresno			228	1,196
Glenn			1,264	9,769
Humboldt				
Imperial				4
Inyo				
Kern				
Kings			504	1,304
Lake				
Lassen			2	10
Los Angeles	697	4,856	14,191	162,059
Madera				
Marin				
Mariposa				
Mendocino				
Merced			2	24
Modoc			9	137
Mono				
Monterey	10,333	112,367	9,900	126,397
Napa				
Nevada			39	78
Orange	1,143	7,853	10,275	133,612
Placer				
Plumas				
Riverside			4	33
Sacramento	101	502	7	105
San Benito	1,080	6,587	283	3,826
San Bernardino	1,132	4,077	4,121	42,928
San Diego			21	87
San Francisco				
San Joaquin	423	2,537	132	1,429
San Luis Obispo	285	1,384	284	5,993
San Mateo				
Santa Barbara	2,426	11,388	11,320	90,849
Santa Clara	4,214	12,373	1,135	8,180
Santa Cruz	2,759	41,553	312	3,511
Shasta				
Sierra				
Siskiyou			128	245
Solano	400	4,000	4	16
Sonoma	580	5,600		
Stanislaus				
Sutter			27	250
Tehama				
Trinity				
Tulare			1,239	9,447
Tuolumne				
Ventura	10,899	87,476	14,533	149,715
Yolo			5,714	55,734
Yuba				
Totals	41,242	356,535	78,957	845,191

PART VI.

VEGETABLES AND NURSERY PRODUCTS.

Tomatoes and Celery; Onions and Garlic; Asparagus, Artichokes, Lettuce, Cucumbers, Cabbages and Brussel Sprouts; Rhubarb; Cantaloupes, Cassabas and Watermelons; Strawberries; Leading Vegetable Districts and Acreage; Vegetable Shipments in 1917; Canned Vegetables; Mustard Seed and Licorice; Ginseng; Flowers, Nursery Products and Seeds; Cork, Tan Bark, and Tanning Extract.

Tomatoes.

The production of tomatoes has increased so much in recent years that it has become an important crop. The season is from about June 15 to October 1, and during that period in 1914 the California shipments amounted to 498 cars, the ten places with the largest number of cars being: Decoto, Alameda County, 95; Henderson, 60; Sacramento, 60; Merced, 47; Los Angeles, 45; Marysville, 41; Fullerton, 39; Monte, 23; Sunnyvale, 22; and Anaheim, 11. In 1917 about 8,000 acres were planted to cannery tomatoes, and between 8,000 and 12,000 acres for shipping varieties, the quantity of the latter was probably around 70,000 tons. The price paid to growers by the packers was from \$8.00 to \$16.00 a ton.

Celery.

Celery is an important crop and was formerly grown on a large scale in Orange County, but owing to the blight it has ceased to be a commercial crop in this county, the growers turning to lima beans and sugar beets, which are more certain and less expensive to raise. A large quantity is raised near El Monte, in Los Angeles County, and also a large acreage near Stockton, in San Joaquin County, and also in Contra Costa and Sacramento counties. The acreage in celery in 1917 amounted to 5,482 compared with 4,452 in the preceding year, or an increase of nearly 25 per cent. A car per acre is usually considered a normal yield or full crop. The standard load has been 160 crates per car when the celery is running large, but is increased to 180 crates later in the season if the celery does not make a good growth. It is probable that the season will start out with 180 crates this year as a result of the car shortage.

Onions.

The onion crop the last two years has not changed much. San Joaquin, Contra Costa and Santa Barbara counties are the leading producers of onions. The total acreage and production the last two years has been as follows:

Year	Acreage	Yield per acre, bushels	Total production, bushels
1914 -----	9,924	400	3,969,600
1915 -----	8,128	375	3,048,000
1916 -----	5,300	348	1,844,400
1917 -----	10,412	180	1,874,160

In 1916 the acreage in Bermuda onions was estimated at 635 acres in Imperial County and 800 acres in Riverside County. The number of cars shipped out of these two counties was 326.

Commercial Acreage of Garlic.

It is estimated that the commercial acreage of garlic in the states named below in 1917 is about 1,545 acres, as compared with 2,065 acres in 1916, a decrease of 520 acres, or about 25 per cent.

State	1917 (acres)	1916 (acres)
Louisiana -----	725	1,160
Texas -----	680	540
California -----	110	125
Arkansas -----	50	100
Totals -----	1,565	1,925

California.—Imperial, Los Angeles, Riverside, San Joaquin, San Mateo, Santa Cruz, and Santa Clara counties produce most garlic.

The imports of garlic into the United States during the fiscal year ending June 30, 1916, were 9,471,619 pounds.

The bulk of these crops of celery and onions are raised in San Joaquin and Sacramento counties. Cucumbers are mostly grown near Hayward and Niles, in Alameda County, and cabbage near Montebello, in Los Angeles County.

LEADING VEGETABLE DISTRICTS AND ACREAGE OF THE MOST IMPORTANT CROPS.*

The large commercial shipping districts are confined to a comparatively few sections of the state and specialization is carried to a high degree by growers.

Artichokes.

Globe artichokes are grown in a small way in various parts of the state, but the extensive commercial production is done in San Mateo County, exclusively. About 3,700 acres are under cultivation on the coast of this county.

Asparagus.

Probably by far the largest asparagus district in the United States is located in the San Joaquin-Sacramento delta. In 1917 there were 23,210 acres in this district alone. Aside from this delta section the Imperial Valley, with 283 acres, is the only car lot shipper.

Brussel Sprouts.

Brussel sprouts are grown extensively in but one place. San Mateo County had approximately 400 acres during the winter of 1917-18.

Cabbages.

Cabbages for commercial shipment are confined almost entirely to Los Angeles, Orange, Imperial, San Mateo, San Diego, Ventura, Sacramento, and San Joaquin counties, the bulk of the spring shipments coming from the two counties first mentioned.

*From Report of the Bureau of Crop Estimates, U. S. Department of Agriculture.

Cantaloupes.

In the year 1917 California grew 17,300 acres of cantaloupes. The commercial production was confined almost entirely to two counties, Imperial and Stanislaus, the former having about four times the area of the latter.

Cassabas and Watermelons.

Cassabas are grown commercially in Los Angeles, Orange, Imperial, Stanislaus and Tulare counties, the acreage being fairly evenly divided.

Watermelons are grown commercially in Tulare, Fresno, Merced, Imperial, Riverside, Los Angeles, and scattering counties. The acreage in 1917 was 3,600.

Celery.

During the season 1917-1918 California grew 5,482 acres of celery. Seventy per cent of this acreage was confined to the San Joaquin-Sacramento delta counties; 22 per cent to Los Angeles County; 4 per cent to Orange County; and 4 per cent to all other counties.

Cauliflower and Broccoli.

At the same time 7,115 acres of cauliflower and broccoli were being grown in California. Sixty-seven per cent of this acreage was grown in Los Angeles County; 26 per cent in the vicinity of San Francisco Bay, and 7 per cent in scattering counties.

Cucumbers.

Cucumbers are grown for shipment in Los Angeles, San Diego, Yuba and Alameda counties. Last year 72 straight cars were shipped out, all coming from Los Angeles County.

Lettuce.

During the same seasons California grew 6,775 acres of lettuce. Fifty-three per cent of this acreage was grown in Los Angeles County; 37 per cent in Imperial County; and 10 per cent in all other counties.

Onions.

In the same year, 9,000 acres of fall onions; *i. e.*, the main crop of late onions for shipment and storage were grown. Ninety per cent of this area was located in the San Joaquin delta.

The production of the Bermuda type of onions is even more restricted, being grown commercially in but two counties, Riverside and Imperial. These two counties have growing for April, May and June shipment this year, 892 and 520 acres, respectively.

Rhubarb.

The commercial growing of rhubarb is also very limited. Aside from the districts which grow for canning and shipment in mixed cars, Alameda County, which has approximately 700 acres, is the only county which ships in car lots as a general practice.

Potatoes.

Potatoes are more widely adapted to local conditions than some of the other crops, but the production of early potatoes on a commercial scale is restricted to districts which are relatively less frosty. The largest producing district for potatoes in the state, which is located in

the San Joaquin delta, produces a small proportion of the early crop. Less than 10 per cent of its plantings could be called early potatoes. The early potato districts of the state are limited to a few counties which have favored locations suited to early planting and rapid growth. Out of 58 counties in California, only 10 are important as producers of early potatoes. The area of early potatoes in 1917 for the state was 19,423 acres.

Tomatoes.

Tomatoes are quite widely grown for canning but the shipping districts are much more limited. While tomatoes are shipped in car lots from Merced, Sacramento, Santa Clara, Alameda, Yuba and San Joaquin counties, over 90 per cent of the shipments originate in southern California, principally from Los Angeles and Orange counties, but also from Imperial and San Diego counties. About 1,500 cars were shipped out to the markets in 1917.

Strawberries.

Strawberries are grown for the markets of San Francisco, Oakland and other cities in several of the central coast counties, but the principal districts for the distant shipments are in Sacramento and Los Angeles counties. Shipping districts of secondary importance are in Imperial, Placer, Fresno, and Siskiyou counties.

From the foregoing it is evident that the truck crop industry of California is highly localized. While records show that upwards of 30,000 cars of vegetables are shipped out of the state annually, it is also known that many of the counties only produce a small percentage of their own requirements for vegetables.

VEGETABLE SHIPMENTS FROM CALIFORNIA IN 1917.*

Product	Northern California		Southern California		Total number of cars
	Number of cars	Net value to growers, per car	Number of cars	Net value to growers, per car	
Cabbage	220	\$360 00	1,170	\$360 00	1,309
Cauliflower	575	300 00	1,233	300 00	1,808
Cucumbers			68	450 00	68
Celery	2,000	300 00	470	300 00	2,470
Lettuce	75	200 00	2,028	200 00	2,103
Asparagus	350	800 00	31	800 00	381
Carrots	25	250 00	25	250 00	50
Onions	4,000	400 00	711	500 00	4,711
Squash			9	240 00	9
Peas	100	1,000 00	46	1,000 00	146
Mixed vegetables	850	400 00	2,154	400 00	3,004
Tomatoes	90	350 00	1,424	350 00	1,514
Rhubarb	128	500 00	1	500 00	129
Turnips	8	250 00	6	250 00	14
Potatoes	8,000	750 00	2,007	750 00	10,007
Cantaloupes	2,700	350 00	5,040	350 00	7,740
Artichokes	215	800 00			215
Garlic	25	600 00			25
Miscellaneous shipments					100
Total for whole state					35,874
Average value per car					\$500 00

*Estimated by the California Vegetable Union.

CANNED VEGETABLES, 1899-1909.

California ranks first among the states in the production of canned asparagus and sixth in that of canned tomatoes. The case which is used as the unit of measure consists of 24 standard-size cans No. 2 (also called 2-pound cans) for beans, peas, and No. 3 (also called 2-pound cans) for all other vegetables. Where the output has been reported in other forms by the canneries, the quantities have been reduced to standard cases.

The principal counties producing tomatoes are Los Angeles, Orange, Alameda, Santa Clara and Sonoma. There is also a considerable acreage in certain portions of the San Joaquin and Sacramento valleys. The average yield of tomatoes grown for the canneries varies from 8 to 10 tons. Under favorable conditions yields of from 15 to 20 tons, and occasionally of 25 tons per acre, are realized. The prices paid by the canneries vary from \$6 to \$8 per ton, while the prices paid in the fresh markets vary from \$10 to \$40 per ton.

The value of the vegetables canned increased throughout during the decade of 1899-1909, the rates of increase from 1904 to 1909 being much higher than that during the preceding five-year period. The value of canned asparagus formed over half of the value of all canned vegetables in 1909.

Canned Vegetables, 1899-1909.

(Compiled from the reports of the Bureau of the Census.)

Product	1899		1904		1909	
	Cases	Value	Cases	Value	Cases	Value
Asparagus					198,123	\$1,794,364
Beans	34,209	\$56,797	65,641	\$133,494	47,525	87,059
Peas	72,760	145,987	68,142	144,083	123,349	250,624
Pumpkins	1,033	1,860	18,852	30,166	11,694	15,165
Tomatoes	794,566	2,068,997	541,776	845,805	545,131	1,120,632
All other	148	396	286,172	1,213,173	65,812	202,795
Totals		\$2,274,037		\$2,366,661		\$3,470,621

Duty on Imported Preserved Vegetables.

All kinds 25 per cent ad valorem.

Canned Vegetables, 1901-1917.

Year	California pack, cases	Exported value	Year	California pack, cases	Exported value
1901	1,076,058	\$528,914	1910	2,250,645	\$782,973
1902	1,151,268	560,612	1911	2,293,000	1,061,259
1903	1,343,574	597,759	1912	2,789,495	1,822,357
1904	961,783	719,580	1913	2,192,330	1,819,281
1905	1,192,455	580,048	1914	3,028,255	1,520,879
1906	1,747,595	658,739	1915	2,607,214	1,898,840
1907	1,941,755	598,628	1916	4,225,070	2,529,694
1908	1,501,885	621,987	1917	6,947,769	4,765,136
1909	1,242,720	728,111			

California Vegetable Pack by Varieties, 1913-1917.
(Cases.)

	1913	1914	1915*	1916*	1917*
Tomatoes and tomato products	1,146,560	1,898,650	1,344,085	2,647,900	4,702,859
Peas	93,870	162,095	209,399	227,120	472,670
Asparagus	723,000	768,810	809,860	990,740	965,708
String beans	228,900	203,700	98,226	123,385	169,326
Other vegetables			145,650	236,525	637,206
Total vegetables	2,192,330	3,028,255	2,608,214	4,225,070	6,947,769

*Copyright 1918 by Howard C. Rowley, publisher California Fruit News, and published by permission from California Fruit News of April 27, 1918.

According to the Census reports in 1909 the total acreage of potatoes and other vegetables was 151,962 and their value \$12,121,958. Excluding potatoes and sweet potatoes the acreage of vegetables was 79,163, and their value \$6,887,000, both being more than twice as great as in 1899. The above table distinguishes between farms which make the raising of vegetables a business of some importance, and others on most of which vegetables are raised mainly for home consumption.

Mustard Seed.

The crop of mustard seed harvested in 1916 amounted to about 29,819 pounds, about 5,000 being yellow and the balance Trieste, or red seed. The quality was quite as good as in 1915, and the yellow was even better and plumper seed on account of being raised on bean land. Prices were exceptionally high, none being imported. Yellow seed sold as high as 11 cents to the grower, and red 19 cents. The entire crop was practically sold.

The acreage was unusually small, in fact smaller than it has been for a good many years, partly on account of the late season, and rains holding off too long, but principally on account of the high price of beans which are a much more profitable crop to the farmer than mustard, most of the mustard seed is raised in Santa Barbara County near Lompoc, but there is a small acreage in other localities.

The acreage planted in 1917 amounted to about 3,500 acres, and the yield averaged about six bags per acre, which was less than one-half of a normal crop. A fair average crop of mustard is about 1,500 pounds per acre. The reason of the short crop was on account of no late rains in the spring of the year, which is very essential for a mustard crop.

Licorice.

This plant is cultivated throughout the warmer parts of Europe, and to some extent in California and Louisiana, and there is much suitable ground in this state where it might be grown profitably. At present Russia supplies practically the whole world with licorice.

This article a generation ago was known and used mainly for its medicinal properties, but has since found other and wider applications, particularly in the tobacco industry of the United States and Canada, which consumes annually many thousands tons of licorice. The amount of licorice root imported varies considerably, in 1913 the amount was 105,116,227 pounds, in 1914 32,336,173 pounds, and in 1917 59,400,224 pounds valued at \$2,190,882. In addition to this, a considerable quantity is imported in the form of extracts and paste.

GINSENG IN CALIFORNIA.*

Many demands are made for information regarding the cultivation of this plant, as some farmers are under the impression that owing to its high price it must be an exceedingly profitable crop, but it offers little inducement for inexperienced growers looking for quick profits from a small investment. The plant takes eighteen months to germinate, and six years to mature; it requires good soil, shade, and careful cultivation. In 1916 in the San Francisco market it brought from \$4 to \$7 per pound, according to grade.

The market rates per pound on December 31, 1913, were \$12.50 gold for extra and selected, \$11 for good root, and \$9.50 for fair root, as compared with \$10.10, \$9 and \$7.87 per pound on December 31, 1912.

The rates for cultivated root during 1913 varied from \$2.20 to \$11 gold per pound, depending upon quality and condition. A large portion of the American imports were sold as of too poor a quality to be graded in the usual manner. The necessity of preparing root in accordance with Chinese ideas, rather than American ideas of what the Chinese ought to want, must not be forgotten.†

Ginseng is only cultivated in small lots. The total acreage in the United States in 1910 was only 23 acres; the value of the ginseng produced was \$151,888.

Exports of Ginseng from the United States, 1908-1917.

Year	Pounds	Value	Year	Pounds	Value
1908 -----	154,180	\$1,111,994	1913 -----	221,901	\$1,665,731
1909 -----	186,257	1,270,632	1914 -----	224,605	1,832,686
1910 -----	192,406	1,439,434	1915 -----	103,184	919,931
1911 -----	153,999	1,068,202	1916 -----	256,082	1,597,508
1912 -----	155,908	1,119,301	1917 -----	198,683	1,386,208

Ginseng is shipped to Hongkong, where a syndicate of Chinese merchants control almost the entire ginseng trade of China, receiving the importations and distributing them throughout the country.

The only competitor America has to fear in this line is Japan. If it is desired to place unmaturing American ginseng on the market, the roots should be fumigated with sulphur, which permits of their longer preservation without deterioration. American ginseng is usually imported in its original state. The Chinese buyer assort the roots according to quality. Some are put into cloth sacks and shaken until the skin becomes smooth, and those resembling the human form are boiled in sirup and afterwards fumigated with sulphur. In this way their value is considerably increased.

Imports of ginseng of all grades into Hongkong for some time past have been rather below the average in amount, and this has particularly been the case with cultivated American root. The price of ginseng, while depending, of course, upon supply and demand, also rests so largely upon peculiar ideas of the Chinese dealers that it is impossible to forecast the market in any way. The lots of ginseng coming from the United States so far this season have been below the

*For a full description of the cultivation and prices of ginseng, see Report for 1913, pages 85-86.

†Consular Reports, March, 1914.

average in size, and prices have been only fair. There is, as usual, a much stronger demand for the wild root, even at much higher prices, than there is for the cultivated root. Further, the cultivated root from the United States arrives in a condition that prevents it from realizing as high a price as it would bring were it gathered, cured, and packed more in accord with Chinese ideas.

All things considered, the demand for American root during 1917 was quite fair, but prices in China were low, and under normal conditions the return to American exporters would have been very unsatisfactory. But prices to consumers of ginseng are fixed in silver. With silver high in value the return to American growers was increased proportionately.

Vegetables, Flowers and Plants and Nursery Products, 1899-1909.

(Compiled from the reports of the Bureau of the Census.)

Crop	Number of farms	Acres		Value of products	
		1899	1909	1899	1909
Vegetables other than potatoes and sweet potatoes.....	*33,755	32,401	79,163	\$2,858,832	\$6,886,885
Farms reporting a product of \$500 or over.....	2,075		53,369		4,836,001
All other farms.....	31,680		25,794		2,050,884
Flowers and plants, total.....	442	672	1,013	590,646	1,888,513
Farms reporting a product of \$250 or over.....	347				1,373,577
All other farms.....	95				14,936
Nursery products, total.....	566	2,914	4,808	558,329	2,212,788
Farms reporting a product of \$250 or over.....	296				2,134,713
All other farms.....	270				78,075

*Not including 9,393 farms that had vegetable gardens, but gave no information as to their products.

FLOWERS, PLANTS, AND NURSERY PRODUCTS.

The choice of crops by the florist is largely influenced by changes in popular taste, the camellia, which was the most popular flower years ago, having been superseded in recent years by the rose, carnation, violet, chrysanthemum, and lily of the valley. There is also a growing demand for orchids.

The raising of flowers and plants and of nursery products is also of considerable importance in California, 5,816 acres being devoted to them in 1909, and the output being valued at \$3,601,301. Most of the product was raised on farms where these branches of agriculture were carried on as an important business.

In 1909 a total of 96,230,420 square feet, or over 2,200 acres, of land under glass was reported in the United States.

In California, 430 farms were reported as florists establishments, with 1,572,480 square feet under glass.

There is comparatively little land under glass in California, compared with the Eastern States, as the climate does not require it.

As the rose is grown in California in such profusion some experiments might be made to produce the famous "attar of rose," which is the most ancient and attractive industry in Bulgaria, where about

20,000 acres are devoted to rose culture. Nearly all the attar of rose is exported to London, Paris and New York. In 1910 the amount exported was 216,000 ounces, and the average price prior to the war was \$12 per ounce.

In Bulgaria but two varieties of roses are cultivated, the red, "*Rosa Damascena*," and the white, "*Rosa Alba*," which are combined in the process of distillation; but the red rose, which resembles the French "*Rose du Roi*," is richer in perfume and essence than the white. In the Rose Valley, where there are some 20,000 acres of gardens, the atmosphere of the entire district is charged with perfume when the roses are in bloom.

FLOWER AND VEGETABLE SEEDS IN 1916-1917.

The growing of seeds has become an important industry in the state, the area in 1916 being upwards of 16,000 acres. Of flower seeds sweet peas are cultivated on a large scale, 1,600 acres being reported in 1916, and upwards of 2,000 in 1917.

The largest acreage is in onion, carrot, lettuce, radish, and spinach, of which there are a very large acreage of each. Other vegetable seeds grown are parsley, parsnip, endive, beet, salsify, chicory, mustard, and celery.

During the past year the acreage in seeds has been increased almost threefold on account of the war. Instead of a few hundred acres of lettuce, radish, onion, carrot, or beet being grown in every case the figures run into the thousands. Quite a large acreage in spinach is being grown, as none can be obtained from the former source of supply in Holland. The largest increase in acreage has taken place in Sacramento, San Joaquin, and Yolo counties, where the bulk of carrot, onion, beet, and spinach crops are being planted. In 1917 the total seed acreage in the state was upwards of 20,000 acres, and for 1918 the figures will probably exceed 30,000 acres, if the seed bean acreage is included. Most of the seed beans are grown in the southern part of the state, but quite an acreage is being planted in the central and northern sections. In 1917 the seed yield as a whole, was below normal, particularly so upon onion which suffered severely from burn during June and July. The value of seeds imported is considerable. In 1915 it amounted to \$23,054,820, in 1916 to \$23,571,760, and in 1917 to \$35,879,665, so the industry should be profitable.

In Humboldt County, near Eureka, large quantities of Dutch bulbs are raised successfully in great variety; among others, 5,000,000 single and double tulips, 4,500,000 narcissus, 500,000 hyacinths, 500,000 crocus, Spanish, English, and Dutch iris, *lilium congiflorum*, *lilium speciosum*, and gladiolus, and 100,000 other bulbs of various varieties. In addition to the above there are azalias, rhododendrons, conifers, and other nursery stock. In seed and bulk cultivation the leading counties are San Benito, Santa Clara, Sacramento, San Joaquin, Yolo, and for bulbs Humboldt and Santa Cruz. In the latter county there are about 20 acres of fresias, 5 acres of other bulbs, 3 acres of callas, and about 10 acres in sweet peas.

THE CORK INDUSTRY.

The cork of commerce is the bark of an evergreen species of oak (*Quercus suber*) tree, which reaches a height of about thirty feet. It grows in the south of Europe and north African coasts, but principally in Spain and Portugal.

The *Quercus suber* is long-lived and the quality of the bark increases with the age of the tree. Many trees in Portugal are known to be centuries old and their product has been gathered by families through succeeding generations.

There are many cork trees in the San Joaquin Valley, although none of them have been utilized for commercial purposes. Their great value lies in their beauty as shade trees and for ornamental purposes. M. Theo. Kearney planted a number of cork oaks on his magnificent estate near Fresno, which passed at the time of his death to the University of California. James Lick, founder of the Lick Observatory, grew cork oaks at his home place in Agnews and there are 200 trees, now five years old, at the George C. Roeding ranch near Fresno.

The cork oak has all the stately beauties of other varieties but has the added advantage of comparatively rapid growth. Cork oak may never be on a commercial basis in California but it grows well here and there is nothing to prevent some man with a deep vision into the future from founding a new industry.

The first stripping of cork from young trees takes place when they are from fifteen to twenty years old, and is known as "virgin cork," which is used only for tanning purposes, or for rustic work in ferneries, conservatories, etc. Subsequently the bark is removed every eight or ten years, the quality of the cork improving with each successive stripping, and the tree lives and thrives under the operation for 150 years and upwards. The produce of the second barking is still so coarse that it is used only for floats for nets, etc.

TAN BARK.

This oak (*Quercus densiflora*) is found in southern Oregon and southward to Mariposa County in California. The tree is also known locally as chesnut oak (*Quercus prinus*). This species grows from southern Maine to Maryland, and in the mountains south to north Alabama and Georgia, and west to Lake Erie, Kentucky and Tennessee.

The amount of oak bark used in 1905 amounted to 422,000 cords, valued at \$3,765,000.

Value of Cork Imported into the United States, 1912-1917.

Year	Value
1912	\$3,242,319 00
1913	3,152,070 00
1914	3,851,794 00
1915	2,782,895 00
1916	3,134,884 00
1917	3,870,389 00

The greater part of imported cork comes from Spain and Portugal each supplying about half of the above quantities; that from other countries is very small.

California Tanbark and Tanning Extract in 1909.

Description	Tons	Cost	Average cost per ton
Oak bark	36,005	\$714,146	\$19 83
Myrobalan nuts	620	20,470	33 02
All others	495	10,152	20 51
Totals	37,120	\$744,768	\$20 06

The average cost per ton in 1909 \$10.31, was 73 cents more than in 1908. The highest average cost per ton was reported by California, \$20.06. In the total quantity of bark, etc., used in 1909, eleven out of the twenty-one states showed gains over 1908, the greatest being 9,605 tons in California. Valonia, which is a product of *Quercus agrifolia*, and *Quercus agilops*, is the commercial name of the acorn cups of these species of oak, which has a higher percentage of tannic acid than any other known tannic material, containing as much as 40 per cent of acid. The value of tanbark and tanning material imported was \$2,849,553 in 1916, and \$2,366,621, in 1917. The quantity of domestic bark for tanning exported in 1917 was 1,850 tons, valued at \$49,907.

PART VII.

HORTICULTURE.

FRUIT ORCHARDS AND VINEYARDS.

Principal Counties in Orchard Fruits, Number of Trees and Vines; Avocados, Dates, Figs, Grapes, Olives, Oranges and Lemons; Small Fruits; Raisins and Currants; Cantaloupes and Watermelons; Fruit Canning; Almonds and Walnuts; Imports and Exports of Fruit.

Orchard Fruits, Grapes, Tropical Fruits, Small Fruits, and Nuts.

The acreage in fruits has never been ascertained. In comparing one year with another the number of trees or vines of bearing age is on the whole a better index of the general changes or tendencies than the quantity of product, which may vary largely owing to favorable or unfavorable climatic conditions.

The total quantity of orchard fruits produced in 1909 was 31,502,000 bushels, valued at \$18,359,000. Plums and prunes, peaches and nectarines, apples and apricots are the most important of the orchard fruits.

The production of grapes in 1909 amounted to 1,979,687,000 pounds, valued at \$10,847,000, and the production of nuts was 28,378,000 pounds, valued at \$2,960,000. Most of the nuts were Persian or English walnuts and almonds.

The total value of the tropical fruits produced in 1909 was \$16,752,000, the value of oranges representing more than three-fourths of the total, and the value of lemons being next in importance.

In value of production among the orchard fruits, the peach ranked second in 1909. It has a wider range for possible growth than the apple, and is the greatest orchard fruit of the deciduous class produced in the state. California produces far more peaches than any other state, Georgia being second, but that state ships more fresh peaches. The nectarine is so similar to the peach as to be botanically classed as a variety of that fruit, it is even more difficult to grow than the apricot, and is produced almost entirely in California.

Year by year the area in fruit continues to expand in nearly all sections in the state.

There are two distinct branches of the apple industry in California; one is the growing of early varieties, like the Astrachan and Gravenstein, which are grown mostly in the Sacramento Valley and foothills; the other, the production of winter apples. The greatest apple district of the state is the Pajaro Valley, including parts of Monterey and Santa Cruz counties, centering at Watsonville. During the harvesting of the crop in the Pajaro Valley, this industry gives employment to several thousands. The annual shipments of green apples average from 3,500 to 4,000 carloads, and evaporated apples, about 150 to 200 carloads.

The leading varieties are Newtown Pippin, Bellflower, Red Pearmain, White Pearmain, Missouri Pippin, Baldwin, Rome Beauty, Spitzenburg, Winesap, Langford Seedling, and Ben Davis.

In the production of apples on the Pacific coast, California ranks second. According to the estimates of the United States Department of Agriculture the quantities for the last three years were as follows:

State	1915 (barrels)	1916 (barrels)	1917 (barrels)
Washington -----	2,433,000	3,225,000	3,467,000
California -----	1,563,000	1,918,000	1,210,000
Oregon -----	1,043,000	1,285,000	1,750,000

California has a monopoly of apricot growing, and in canned and dried forms this is one of the leading fruits exported.

Although the cherry is one of the lesser orchard fruits of California, this state is the leading producer, and Pennsylvania the second.

The cultivation of dates is also progressing, but the acreage is so broken up into small holdings that it is difficult to estimate the number, but it now amounts to several hundred. They are mostly grown in the Coachella Valley, in Riverside County.

Figs are annually becoming a more important crop, the Smyrna and White Adriatic being the most important varieties.

The production of pears declined for many years, owing to the ravages of the pear blight, but is now recovering from the setback the industry received. The varieties grown are comparatively few, and the Bartlett is the chief.

Prunes and plums are largely grown in certain counties, and the production of French prunes has developed into one of the largest dried fruit industries in the state.

Raisins are the most important fruit crop, and it is only in this state that they are produced.

The olive is another of the old Mission fruits which has come to the front again within the last few years. It thrives on a great variety of soils. The production is about equally divided between southern California and the northern and central counties.

Number of Trees and Vines in California in 1910.
(From the Reports of the Bureau of the Census.)

Crop	Bearing trees in 1910	Non-bearing trees in 1910	Total	Quantity, bushels, 1909	Value 1909
Orchard fruits—					
Peaches and nectarines.....	7,829,011	4,409,562	12,238,573	9,267,118	\$4,573,775
Plums and prunes.....	7,168,705	1,599,939	8,768,644	9,317,979	5,473,539
Apricots.....	2,992,453	581,524	3,573,977	4,066,823	2,768,921
Apples.....	2,482,762	1,054,107	3,536,869	6,335,073	2,901,662
Pears.....	1,410,905	398,093	1,808,998	1,928,097	1,660,963
Cherries.....	522,304	300,063	822,367	501,013	951,624
Quinces.....	76,979	65,471	142,450	32,638	26,266
Mulberries.....	2,076	1,303	3,380	52,766	2,147
Totals.....	22,485,195	8,410,062	30,895,257	31,501,507	\$18,358,897
Tropical fruits—					
Oranges.....	6,615,805	2,093,410	8,709,215	*14,436,180	\$12,951,505
Lemons.....	941,293	379,676	1,320,969	*2,756,221	2,976,571
Pomeloos (grapefruit).....	43,424	25,589	69,013	*122,515	143,180
Mandarins.....	351	23	374	*555	607
Tangerines.....	3,637	34	3,671	*3,581	4,188
Total citrus fruits.....	7,604,510	2,498,732	10,103,242	*15,319,052	\$16,076,051
Olives.....	836,347	121,659	958,006	*16,132,412	\$401,277
Figs.....	269,001	214,527	483,528	*22,990,353	260,153
Guavas.....	7,031	443	7,474	*95,053	4,018
Loquats.....	3,711	1,011	4,722	*4,516	5,830
Pomegranates.....	1,771	2,745	4,516	*30,075	969
Japanese persimmons.....	3,274	8,801	12,075	*2,696	3,344
Dates.....	325	19,552	19,877	*3,332	418
Unclassified.....	35	200			
Totals.....	*8,726,005	*2,867,670	11,593,675		*\$16,752,101

*Boxes. *Pounds. *Bushels. *Includes limes, bananas, and citrons.

Grapes.

(From the Reports of the Bureau of the Census.)

	Bearing	Non-bearing	Total	Quantity, pounds	Value
Grapes.....	144,097,671	39,526,311	183,623,989	1,979,686,525	\$10,846,812

Nuts.

	Bearing trees in 1910	Non-bearing trees in 1910	Total	Quantity, pounds, 1909	Value, 1909
Almonds.....	1,166,730	365,961	1,532,691	6,692,513	\$700,304
Persian or English walnuts.....	853,237	546,804	1,400,041	21,432,266	2,247,193
Black walnuts.....	6,582	7,905	14,487	159,374	2,562
Pecans.....	4,226	2,793	7,019	44,955	4,632
Chestnuts.....	1,763	2,948	4,711	37,153	3,474
Franquette.....	408	617	1,025	4,550	910
Unclassified.....	1,356				
Totals.....	*2,034,302	*931,933	2,966,235	*28,378,115	\$2,959,945

*Including Oou-shue, Chili nuts, Brazil nuts, Japanese chestnuts, beechnuts, hazelnuts, French nuts, Japanese walnuts, pistachios, butternuts, mazettes, hickory nuts, filberts, and other nuts.

Summary.

	Bearing trees	Non-bearing trees	Total
Orchard fruits	22,485,195	8,410,062	30,895,257
Tropical fruits—citrus	7,604,510	2,498,732	10,103,242
Other tropical fruits	1,121,495	368,938	1,490,433
Total tropical fruits	8,726,005	2,867,670	11,593,675
Nuts	2,034,302	981,933	2,966,235
Total trees	33,245,502	12,209,665	45,455,167
Grapevines	144,097,670	39,526,319	183,623,989

Acreage and Production of Small Fruits, 1899-1909.

Kind	Number of farms, 1909	Acres		Quarts, 1909	Value, 1909
		1899	1909		
Strawberries	2,282	2,418	4,585	15,694,326	\$1,149,475
Blackberries and dewberries	3,190	1,960	2,576	4,896,524	282,383
Raspberries and loganberries	2,524	987	1,992	5,222,117	304,169
Currants	364	724	407	852,378	43,508
Gooseberries	343	133	74	145,119	9,086
Cranberries	12		53	10,656	443
Other berries	1	59	*	1,000	150
Totals		6,281	9,687	26,824,120	\$1,789,214

*Less than 1 acre.

The following table shows the quantities of the more advanced products manufactured by farmers from orchard and tropical fruits and grapes in 1909:

Product	Number of farms	Unit	Quantity, 1899	Produced, 1909
Older	481	gallons	75,443	118,456
Vinegar	973	gallons	199,678	244,683
Wine and grape juice	2,163	gallons	5,492,216	16,005,519
Olive oil	78	gallons	8,445	95,955
Raisins and dried grapes	4,551	pounds	117,935,727	{ 169,210,679 189,495,705
Other dried fruit	8,373	pounds		

NOTE.—These figures do not include wine, grape juice, and vinegar made in regular wineries, nor olive oil made in regular factories.

Leading Counties in Fruits and Nuts.
(Value of one million and upward in 1909.)

County	Value	County	Value
Los Angeles	\$6,731,000	Sonoma	\$2,034,000
San Bernardino	5,357,000	Ventura	1,795,000
Fresno	5,279,000	Santa Cruz	1,656,000
Santa Clara	4,234,000	Solano	1,495,000
Riverside	2,393,000	Placer	1,318,000
Orange	2,497,000	San Joaquin	1,307,000
Sacramento	2,265,000	Kings	1,219,000
Tulare	2,053,000		

Total Value of All Crops, by Counties.

(Value of four million dollars and upward in 1909.)

(Compiled from the Reports of the Bureau of the Census.)

County	Value	County	Value
Los Angeles -----	\$14,720,000	Tulare -----	\$5,353,000
San Joaquin -----	9,082,000	Riverside -----	5,133,000
Fresno -----	7,991,000	Sacramento -----	4,720,000
Santa Clara -----	6,968,000	Sonoma -----	4,451,000
San Bernardino -----	6,818,000	Monterey -----	4,325,000
Ventura -----	6,751,000	Alameda -----	4,276,000
Orange -----	6,176,000	Contra Costa -----	4,032,000

NOTE.—These figures are for the value of crops only, and do not include wine and other products.

The three leading crops on the basis of value in California in 1909 according to the census reports were:

Crop	Acreage	Production	Value
Fruit and nuts -----			\$50,706,869
Hay and forage -----	2,533,347	4,327,130 tons	42,187,215
Barley -----	1,195,158	26,441,954 bushels	17,184,508

CALIFORNIA FRUITS.**Apples.**

Apple growing in California is widely distributed. From 100 to 500 acres or ore of bearing trees occur in nearly every county in the state, but a very large proportion of the commercial crop is produced in two or three sections. The Pajaro Valley, which includes the southern part of Santa Cruz County and the northern part of Monterey County, perhaps more commonly called the Watsonville district, is the most important apple-growing section in California, the two counties named producing nearly 65 per cent of the entire crop of the state. The Sebastopol section of Sonoma County is the second largest district, that county producing about 16 per cent of the normal crop of the state.

THE AVOCADO.

Avocado growing in California is still in its infancy but rapid advance is being made and the industry is expected soon to assume rather prominent proportions. According to estimates of the California Avocado Association, there are approximately 26,000 budded trees planted in the state. Of this number probably 16,000 would be considered good, marketable varieties. Individual trees in the vicinity of Los Angeles, bear from 400 to as high as 2,000 fruits each, which during the season have sold at prices of from 25 cents to \$1.25 apiece. Gross incomes of \$200 to \$1,000 per tree have occasionally been secured. Such returns, however, must be considered as exceptional and of little value or interest to the prospective planter. Trees in bearing are as yet mainly isolated specimens in yards. Few trees in orchard form have yet come into bearing.

The severe hot weather of last summer caused considerable damage especially to nursery stock, many budded trees being killed. There are now approximately 40,000 trees in nurseries which will probably supply all of the demands for this year.

The root stock most favored by avocado growers is the so-called Mexican seedling stock, and as seeds can not be imported from Mexico under the United States quarantine laws, the supply of stock available for budding is limited. Native grown seed, however, is rapidly increasing and the development of the industry will not be seriously affected.

Many of the newly planted groves are now coming into bearing and the production of avocados is likely to increase rapidly in the next few years. It is the general opinion that the market demand for the fruit will increase more rapidly than the production. Rapid strides are being made in the improvement of avocado growing and acquaintance with the fruit is becoming more general. The avocado has the highest food value of any fruit cultivated and is certain, in the near future, to become a standard commercial fruit.

The question of seed for nursery stock is rapidly being solved by the increased production of trees planted in southern California of the thin skin type, which are hardier, and used for that reason. The prospect for the larger fruit of the thick skin variety such as the Spinks, are very good, there are other varieties such as the Caribou, I X L and Rey.

Dates.

While date trees can be grown wherever the orange is grown, they will not properly mature in any except the hottest and driest portions of the state. According to Dr. J. Eliot Coit, pomologist, California Experiment Stations, the requisite conditions may be found in many places throughout the Imperial, Coachello, and Colorado valleys, and the country around Palo Verde and Blythe, Riverside County. At other places in the state, such as the vicinity of Riverside, Redlands, Fresno, and Oroville, early dates might be grown in a small way for home consumption, or be sold in the fresh, uncured condition. While the new industry has a very promising future, it should be clearly borne in mind that date culture is a new industry, requiring experience and unusual skill on the part of the grower, and it must be carried out in regions having an extremely hot summer climate, and it must be remembered that to bring date palms into bearing costs very much more per acre than to grow any other orchard crop.

There are more than 500 named varieties of date palms, and 220 varieties have been tested out in this country by the Government Experimental Gardens and private parties.

Less than a dozen of the varieties now being tested seem to warrant planting in commercial quantities—the Deglet Noor, Itema, Tazizaoot, Hayana, Saidy, Ascherasi, Maktum, Horra, Thoory, and Agrass, being exceptionally desirable, while planting seed of the following, Deglet Noor, Menakher and Medjool is recommended.

The date has a real food value that is not understood by the uninitiated. The Arabs of the Sahara, as well as those of Arabia and Persia, use dates for more than one-third their food. Dates being 56 to 70 per cent sugar, preserve themselves and will keep indefinitely.

While of many varieties, dates may practically be classed as of three sorts—soft, dry, and semi-dry. The Deglet Noor is probably the best

of the latter class. Dates are grown principally in the Coachella Valley, in Riverside County. The acreage of dates is so broken up into a number of small holdings that it is difficult to estimate the area, but it now amounts to several hundred acres.

The important feature now in the development of this new industry will be to get offshoots of good varieties. France has issued a decree prohibiting exportation of Deglet Noor offshoots to any countries, with the exception of Tunis and Morocco. This variety can not be secured anywhere else and such offshoots as can be purchased in this country will be very high in price. There is a question whether offshoots of any varieties can be secured from Egypt in the next three to five years. There are very few varieties from the Persian Gulf region that are worthy of propagation in this country, as very few varieties from Persia have been found that are resistant to the climatic conditions in the two valleys in the ripening season.

Thousands of seedlings are now beginning to produce fruit, and many of them are producing fruit of good quality, and a larger production is hoped for each year, as the seed is pedigreed pollination from selected males and results have been gained already that look very promising for the origination of new varieties here that will help to build up the industry and bring it to a commercial basis much sooner than could otherwise be accomplished.

The Coachella Valley, it is claimed, will produce finer dates than the Imperial or Colorado valleys, owing to the humidity being less than in the other regions. Fruit of good quality for home use can undoubtedly be produced in a large part of the San Joaquin Valley, some parts of the Sacramento Valley, and a warm coastal region, such as that around San Diego.

In 1916 the crop from imported trees in the Coachella Valley was about 12,000 pounds and the crop from seedlings was estimated by us at 30,000 pounds. The seedling crop brought an average of 20 cents per pound on the market and the fruit from the imported trees was estimated at 50 cents per pound wholesale. The fruit from the imported trees was of very good quality, although some of the earlier varieties were very soft and had to be handled with great care in order to get them to the market in good condition. The seedling fruit marketed from this valley was mostly packed in open berry baskets shipped in crates of 15 baskets to the crate and most of it carried very well.

On the other hand, the growers of the seedling fruit found that on account of the immense variation of the seedling varieties that much closer attention would have to be paid to the handling of the crop as fast as it ripens and also to those varieties that would have to be ripened artificially. There is no question but that there will be some very good varieties originated from the seedlings throughout the valley. But, on the other hand, for fruit quality that will sell on the market at good prices and that will carry long distances in the best of condition, the standard varieties such as Deglet Noor, Tazizaoot, Itema, will be the only ones that can be really depended upon until the seedling varieties are classified and standardized as to the quality and shipping resistance.

The date industry at the present time looks very promising on the one hand while on the other it is rather discouraging that there is such a shortage in offshoots of standard varieties. Men of capital are ready

to invest and start plantings of commercial date gardens, but there is no stock available and until there is the industry will probably advance very slowly.

Figs.

The fig industry of California is annually becoming a more important crop. In 1884 the "White Adriatic" was introduced into Fresno County. Mr. Markarian planted the border of his vineyard to this variety, and ten years later packed figs in his raisin packing house.

The annual production of California, which is the only state that produces figs in commercial quantities, is approximately as follows, but the acreage is increasing rapidly, especially in Fresno County where an extensive acreage has been planted during the last two years. That there is a large and growing demand for this fruit is proved by the imports which average about 20,000,000 pounds.

In 1917, upwards of 1,500 acres were planted in Fresno County, about one-half in Smyrna, and the other half in White Adriatics. In the quantity of figs produced it is, of course, always understood that it refers to dried figs only.

Estimated Production in 1916.

	State	Fresno County
White Adriatic	5,000 tons	3,800 tons
Smyrna figs	600 tons	400 tons
Black Mission	300 tons	100 tons

The crop in 1916 was a short one, but in 1917 amounted to about 12,000 tons, and the coming crop promises to be much larger.

The prices paid to growers in 1917, and the prices quoted for the 1918 crop are as follows:

	1917	1918
Olimyrna or Smyrna figs.....	8¢ to 12½¢	12½¢ to 19¢
Adriatic	5¢ to 7½¢	7½¢ to 15¢
Mission	3¢ to 5 ¢	5 ¢ to 8¢

TABLE GRAPES AND ALMERIA GRAPES.

Table Grapes.*

The principal localities in the state from which table grapes are shipped are the counties of Sacramento, Placer, El Dorado, San Joaquin, Merced, Madera, Stanislaus, Fresno, Kings, Tulare, San Diego and Imperial. Other counties shipping in limited quantities are Sutter, Contra Costa, Yuba, Colusa, Santa Clara, Los Angeles and Yolo.

The total number of straight carloads of grapes of all varieties shipped out of the state, including table grapes as well as wine types, was according to railroad figures 16,564. This total is not segregated by the railroads as between table and wine varieties, but our information gathered from almost every source gives the total of wine grape shipments as 4,000 carloads, leaving the total shipments of table grapes outside of the state 12,564 carloads.

*From the Report of the State Board of Viticultural Commissioners.

It is always estimated in figuring the total production of table grapes in the state that 1,000 carloads are made up of shipments within the state and small express shipments out of the state.

Therefore, we may safely say that there were produced in California during the season of 1917, 13,564 carloads of table grapes. In this total of carloads of table grapes there were 450 carloads of drum grapes—that is, grapes packed in sawdust in kegs or drums.

The average car of table grapes contained 1,000 crates, a net weight of grapes amounting to 13 tons to the carload. Table grapes shipped in this form and in lug boxes, therefore, aggregated the total bulk or weight of 170,482 tons.

Grapes shipped in drums packed in redwood sawdust totaled 252,000 such packages, and the net weight of grapes in this number of packages was 4,032 tons.

The total bulk of table grapes produced in the state in 1917 and shipped as such variety was 174,514 tons.

Growers of table grapes realized very satisfactory prices in Eastern markets and at home. During part of the season carloads of table grapes sold as high as \$3,000, but this figure was unusual. Average prices ranged from \$1,400 to \$1,800 per carload; then, of course, many of the cars sold for much less than this figure. The lower sales were due, however, to several causes.

It may be safely estimated that the table grape crop produced in the state and shipped in the form of crates and lug boxes totaled a selling figure of \$17,500,000. After deducting freight, refrigeration, selling expenses, loading, packing and the cost of crates there was a net return to the growers of \$8,000,000 for their grapes at the packing sheds. This amount, of course, was not net profit, as out of it comes the harvesting of the crop, the care of the vineyards throughout the year, taxes, depreciation, etc.

The Emperor grapes packed in sawdust average about \$2.75 per drum, f. o. b. California, and in the estimate in the foregoing paragraph we have included these sales.

In 1916 these Emperor grapes arrived in Eastern markets in rotting condition and the houses that had purchased them in California in carload lots suffered in many instances an entire loss. The grapes had been packed in this state during, or immediately after, rainy weather and they were not free of surface moisture. As a matter of fact, many bunches of grapes developed mold while hanging on the vines and the vital mistake was made of packing them in sawdust when they were in this condition. Most of the Emperor grapes so packed are sold outright at the shipping point in California or on a guarantee basis and in most instances these grapes were paid for before they were opened up in the Eastern markets.

Grape Packing in Redwood Sawdust.

In 1906, Professor A. V. Stubenrauch, Pomologist, and C. W. Mann, Assistant Pomologist in Fruit Transportation and Storage Investigations, United States Government, began a series of experiments in California covering the correct packing and storage of California grapes. Their investigations continued over a period of seven years, during which time all sorts of packing materials and styles of package were

experimented with, resulting finally in the discovery that redwood sawdust was as perfect a medium for the preservation of the fruit as could be found. Their experiments in this direction were encouraged undoubtedly by the fact that for many years in Spain grapes have been packed in sawdust for shipment to England and other points, enabling the growers to successfully place upon these markets even the most tender varieties. In that country the ordinary pine sawdust is the only kind available, and in order to drive away the resinous flavor which might affect that of the grape, it is customary to expose the sawdust in great heaps to the sun of the summer and the storms of the winter, turning the heaps occasionally until all of the sawdust has been so exposed. This process is continued for not less than three years, at the end of which time the material is ready for use.

Several different kinds of pulverized redwood were used, including the dust from planing mills, fine shavings, etc., but the final conclusion was that coarse redwood sawdust, which has been run through a blower, to take out the fine particles and the dust, and a revolving drum, to smooth off the sharp corners and edges, was the ideal material.

Experimental packing with sawdust has been tried with practically all the European varieties grown in California, but the greatest success has been achieved with the Almeria, Cornichon, and Emperor. Undoubtedly there are a number of other varieties less well known and having thick skins that would keep equally well.

It has been found that sound grapes, well selected, of perfect color and maturity, will keep well for from one to three months. There are some examples of perfect keeping for as much as five months, but as a general rule it is safe to say that fruit so packed will be in the best condition for sale and consumption during the holidays, and more or less chance will be taken if it is longer held.

The Emperor season usually opens about the middle of September, and continues, in the ordinary year, to nearly the first of November. With fruit as commonly packed, immediate consumption is necessary, but with the sawdust packing, it is seen that the selling season can be extended for two or three months, making possible far better distribution, and by limitation of daily offerings enabling the dealer to realize much better prices.

No considerable quantities of grapes were packed in this way for shipment until 1912, when approximately thirty carloads were forwarded. Since that time shipments have constantly increased until 1917, when it is estimated between four and five hundred carloads were forwarded.

Generally speaking, this style of pack has been found exceedingly satisfactory. Considerable trouble and some heavy losses were experienced in 1916 owing to early Fall rains, which affected the keeping qualities of the fruit. With possibly this exception the results in other years have been uniformly good.

Almeria Grapes in Australia.

Almeria grapes are another fruit that we ought to be able to produce in California under suitable conditions, but the attempts made have not yet proved successful. Both the Almeria grape and Greek currants are grown with success in Australia, and the Government Viticulturist of Victoria, Australia, in a recent letter expresses his surprise at these

conditions, saying: "I note that you still import over a million dollars' worth of Greek currants. It seems strange that you do not grow any locally, as the Zante currant should do well in the California climate. It thrives admirably in the irrigation districts of Northern Victoria, yielding as much as three tons of dried currants to the acre, whereas the Sultana, which also does very well with us, rarely exceeds two tons.

"You refer to the vine as 'a peculiar dwarf grapevine.' It could, of course, be trained thus, but here we grow it on very large trellises, planting the vines as much as 15 feet apart. The Zante was not a success here until cincturing, or ringbarking, was introduced a dozen years ago. This operation is performed on the main stem during, or immediately after, blossoming. Without it the bulk of the fruit drops off. Since cincturing proved a success the Zante was very extensively planted, and we now produce more currants than the commonwealth can consume, with the result that prices fell considerably from \$200 to \$115 per ton. They have risen again recently, owing to last year's crop only being a half one.

"I am rather astonished that the Almeria grape has not proved satisfactory with you, since it is doing splendidly with us. You may, perhaps, have seen some Victorian-grown Ohanez grapes (the Almeria variety) at the Panama Exposition. It keeps here in good condition for six months and over in cool store. It has occurred to me that a peculiarity in its method of fruiting may have something to do with its non-success in California."

A recent Bulletin issued by the United States Department of Agriculture on the raisin industry confirms this view regarding Greek currants. It states in part: "Currants have not so far been grown to any great extent in this country, not because they will not thrive here, but no one has engaged in their culture seriously enough to determine the right way to grow, prune and train them. * * * The Department of Agriculture for some years has made experiments in the growing of currant varieties of grapes on different resistant stocks and practiced on them different methods of pruning and training, with very gratifying results, and strong hopes are entertained of starting and developing this special line of the raisin industry. There seems to be no reason why this country should not produce the 35,356,000 pounds, or \$1,206,000 worth of currants it has for ten years been annually importing."

IMPORTED ALMERIA GRAPES.

These table grapes come from the province of that name in Spain, and during the last six years their value has amounted to between \$1,500,000 and \$2,000,000 a year. They come into competition with late-season shipments of California Tokays, Cornichon and Emperor grapes. Cuttings of the Almeria grape have been imported into California, but the result so far has not been satisfactory.

The season for importations is from September 15 to December 15, the bulk of which is received at New York, although about one-fifth go through Boston, Philadelphia and New Orleans. The fruit is put up in barrels, the gross weight, including cork-dust, being from 60 to 70 pounds, and the net weight of a barrel about 45 pounds. California Malagas come in the most direct competition with Almeria grapes, being of a similar color and somewhat similar flavor, although not near as good as a keeper.

Almeria Grapes Imported, 1907-1917.
(Duty, 25 cents per cubic foot capacity of barrel or packages.)

Year	Cubic feet	Value	Year	Cubic feet	Value
1907	1,298,469	\$1,575,521	1913	1,135,942	\$1,359,415
1908	2,234,508	2,743,356	1914	1,334,163	1,599,969
1909	1,203,419	1,575,620	1915	1,323,928	1,523,547
1910	1,365,310	1,682,994	1916	623,856	703,274
1911	1,485,159	1,723,022	1917	1,492,446	1,656,609
1912	2,000,841	2,331,504			

THE LOQUAT.

This fruit is widely grown in California as an ornamental plant, and a small amount of fruit is marketed. The Census of 1910 reported 3,700 trees in bearing, producing 4,500 boxes.

GUAVAS.

Two species of guava have been quite widely tried in this state—the strawberry guava, and the lemon guava. The former is the hardier and is worth while growing for jellies. They are only grown in California and Florida. According to the Census reports of 1910 there were upwards of 7,000 bearing trees in California, producing about 95,000 pounds of fruit.

THE JUJUBE.

The plant is easily grown from seed or cuttings, and the fruit is used by confectioners. The fruit is edible fresh or dried, but has not been turned to commercial account.

The importation of the large fruited, grafted Chinese varieties was only begun in 1906. Under irrigation in northern California, and without irrigation in central Texas, the trees have grown luxuriantly and fruited abundantly. When not over-ripe, the jujubes have a sweet, delicate flavor, quite unlike any other fruit, and a texture and crispness which reminds one of a crabapple. One becomes fond of them even though they cannot be said to compare with other fresh fruits like the pear or apple. The ripe fruit contains a high per cent of cane sugar—as much as 20 per cent.

It is as a prepared or candied fruit that the jujube deserves to be most seriously considered by American horticulturists, for when processed as they are by the Chinese they compare favorably with the Persian date in flavor and palatability, and, to the unobserving, they might be mistaken for dates.

In general, the jujube may be said to be a heavy bearer, and in Texas and California some varieties have proved unusually fruitful. They bear very early, some one-year-old grafts producing as many as 24 fruits. Trees have fruited heavily at Chico, Fresno, Indio, and Bard, Cal., and San Antonio, Austin, and Fort Worth, Texas.

THE PERSIMMON.

The persimmon of the Southern States was introduced into California in early days. The widely distributed species, however, is the Japanese, of which many varieties are now fruiting in different parts of the state.

Local sale in San Francisco and Los Angeles is profitable in a small way. The removal of estringency while the fruit remains firm has been successfully accomplished by Mr. Geo. C. Roeding, of Fresno, following a Japanese method. Perhaps the largest single persimmon-producing proposition in California is that of Ira Avery in Placer County. The Tane Nashi variety pays best on account of its size and earliness.

THE JAPANESE OR KAKI PERSIMMON.*

The Kaki or Japanese persimmon was introduced into California about 1870, and is to be found to a greater or less extent in nearly every county in the state. The tree is easily grown, is practically free from serious diseases and insect pests, and is in most cases exceedingly prolific. The fruit is very attractive in appearance, ships well to both local and distant markets, and is almost universally liked if eaten in the proper condition. There are commercial orchards in Orange, Los Angeles, Tulare, Fresno, Santa Barbara, Solano, and Placer counties. During several seasons past, the fruit has been shipped to the East in carload lots, especially from the Newcastle district, where the largest acreage is to be found.

Although the persimmon tree is deciduous it does not thrive in a cold climate, and some of the first trees brought to the United States died from being planted too far north. Propagation of the persimmon is practiced to only a small extent by nurseries in California since trees may be secured very cheaply from reliable Japanese firms.

The number of varieties of Japanese and Chinese persimmons runs into the hundreds. Some of the best have been introduced, but there are undoubtedly many others which are equal if not superior to those being commonly grown here. As long ago as 1891 the identity of the following varieties was practically established: Hachiya, Tanenashi, Yemon, Hyakume, Yeddo Ichi, Tsuru, Zengi, Kurokume, Yamatsuru, and Dai-dai. Dozens of other varieties, however, are being grown either without any name at all or under a local name. Some of these may be local seedlings, but the majority were probably bought from Japanese nurserymen years ago and the names lost or forgotten. It is doubtful whether we shall ever be able to associate these varieties with their correct Japanese names, however desirable it might be to do so.

For general planting the Hachiya is to be recommended on account of its size, appearance, bearing habits, good flavor, and habit of ripening uniformly. The Tanenashi is favorably regarded in some sections, but often has a loose core which permits dust and mold to enter; it has a mealy flesh, on account of which some growers call it the "Pasty persimmon." Among the dark-fleshed kinds the Hyakume, Dai-dai, and Goshō can be recommended.

The culture of persimmons on a large scale is hardly advisable at present. For five- and even ten-acre orchards there are possibly good prospects of profitable returns, if anything like the care and attention are given to the trees, the handling and marketing of the fruit as are given to prunes, peaches, or walnuts.

*From the article by Professor Ira. J. Condit, University of California.

THE POMEGRANATE.

This fruit is grown in various parts of the state, and certain quantities are profitably sold. The variety chiefly cultivated is a bright orange color, but a large number vary with a faint blush to dark red. The fruit ripens in the warmer parts of the state in October. Pomegranates for Eastern shipment have proved profitable in the Porterville district, whence nine carloads were shipped in 1913, and the fruit netted approximately \$75 per ton to the growers. At the present time, California has about 125 to 150 acres planted in this fruit as follows: Porterville district, 60 to 65 acres; Fresno district, 25 to 30 acres; Imperial Valley, 15 to 25 acres; and the rest of the state 25 to 30 acres. In 1915 one firm in the Porterville district handled 7,219 boxes, which netted the growers \$6,136. The only hindrance to a rapid extension of pomegranate planting in California is the lack of market demand.

PEACHES.

In the production of peaches, California leads all other states, large quantities being dried and canned, and in the shipment of fresh peaches is only exceeded by Georgia. Magnificent nectarines are grown, but in comparatively small quantities.

Shipment of Peaches in 1914 by Ten Leading States.

The 10 leading states in the shipment of peaches in 1914, each showing shipments of more than 1,000 carloads, were as follows:

State	Carloads	State	Carloads
Georgia -----	4,803	Colorado -----	2,075
California -----	2,983	West Virginia -----	1,978
Washington -----	2,501	New Jersey -----	1,556
Ohio -----	2,340	Utah -----	1,556
Michigan -----	2,266	Maryland -----	1,231

California.

The following summary gives the principal districts from which fresh peaches were shipped in 1914:

(May 25 to October 1.)

District	Carloads	District	Carloads
Newcastle -----	571.0	Denair -----	8.0
Loomis -----	365.0	Pasadena -----	8.0
Sanger -----	310.0	Swall -----	8.0
Kingsburg -----	250.0	Hemet -----	7.0
Selma -----	200.0	Lincoln -----	7.0
Penryn -----	162.0	Oakdale -----	7.0
Cucamonga -----	148.0	Oakland -----	7.0
Parlier -----	143.0	Anderson -----	5.0
Armona -----	141.0	Guinda -----	4.0
Corning -----	123.0	Loma -----	4.0
Fresno -----	68.5	Seville -----	4.0
Winters -----	55.0	Yettam -----	4.0
Del Rey -----	43.0	Cornwall -----	3.0
Tulare -----	43.0	Los Angeles -----	8.0
Clovis -----	40.0	Visalia -----	3.0
Auburn -----	38.0	Antioch -----	2.0
Hanford -----	30.0	Bowles -----	2.0
Dinuba -----	28.0	Merced -----	2.0
Yam -----	28.0	Laton -----	2.0
Fowler -----	20.0	Monmouth -----	2.0
Reedley -----	13.0	Winton -----	2.0
Sultana -----	12.0	Corona -----	1.0
Yuba City -----	12.0	Miley -----	1.0
Outler -----	11.0	Stockton -----	1.0
Riverbank -----	11.0	Woodsbro -----	1.0
Sulsun -----	10.3		
Oleander -----	10.0	State total -----	2,983.8

Now that the California peach growers have organized with a membership of six thousand, and \$1,000,000 capital, controlling 85 per cent or more of the tonnage in the state, the industry is on a sound basis, and the prices obtained have been satisfactory to the growers. In 1916 the crop amounted to about 29,000 tons.

The quality of the 1916 crop was fully up to the average, and probably about equal to that of the crop of 1915.

The average price to the grower for the 1916 crop was about 100 per cent greater than the average price for the 1915 crop. It must be borne in mind, however, that during the year of 1915, peaches reached the lowest price known to the industry. Taking, however, a period of five years, the current price for the 1916 crop is probably not over 10 or 15 per cent above the average for that length of time.

The production of dried peaches in 1917 was between 38,000 and 40,000 tons. The quality was not as good as in either 1915 or 1916, and the crop as a whole ran to smaller grades, but was the largest ever produced in California, and notwithstanding this fact, the entire crop was marketed by February 1, 1918. The percentage of standard yellows in the 1916 crop was 8½ per cent, extra fancy 16½ per cent; in 1917 these grades were 18½ per cent and 5 per cent, respectively. On the Muir variety the comparison of the same grades shows 1916 crop 24 per cent standard, and 5 per cent extra fancy; the 1917 crop 31½ standard, 1½ per cent extra fancy, and the quality of the peach itself was not as good as either of the two previous years.

The maximum price received by the grower for the 1914-1915 crops, before the Peach Association was organized, was 3 cents a pound in the sweat box. The average for the 1916 crop was a little better than 6

cents, and for the 1917 crop a fraction over 8 cents a pound. The minimum prices paid growers for these two crops were 5 and 6½ cents.

Peeled Peaches.

A peeling process for dried peaches on which a patent has been granted to the California Peach Growers Association, giving them the sole right to use this process, and the first year's operation has proved a great success, one-fifth of the entire crop being marketed in this form.

FRESH DECIDUOUS FRUITS.

The shipments of deciduous fruits in 1917 far exceeded all previous years.

Statement Showing Number of Cars of Each Variety Shipped, 1903-1917.

Year	Apricots	Cherries	Grapes	Peaches	Pears	Plums	Apples*	Miscellaneous	Total
1903	241	211	1,804	1,857	1,720	1,145	671	22	7,671
1904	97	209	1,451	559	2,186	1,053	43	28	5,626
1905	279	79	1,602	1,946	1,013	1,391	1,913	16	8,239
1906	16	150	2,052	584	1,513	1,220	748	22	6,905
1907	71	133	3,460	699	1,039	1,039	1,067	18	7,526
1908	232	208	3,819	1,980	2,702	1,763	2,201	15	12,920
1909	210	250	5,680	2,599	2,638	1,526	2,158	19	15,280
1910	290	250	4,948	2,518	2,361	1,552	2,136	17	14,072
1911	215	216	6,374	2,027	2,325	1,366	-----	16	12,539
1912	196	244	6,357	1,621	3,135	1,776	-----	15	13,344
1913	158	231	6,363	2,359	2,496	1,706	-----	19	13,332
1914	382	166	8,773	2,144	2,725	1,907	-----	49	16,146
1915	392	205	9,563	1,689	2,646	2,225	-----	58	16,778
1916	290	164	9,722	1,909	3,701	1,999	-----	106	17,891
1917	403	330	13,944	2,432	4,802	2,651	-----	66	24,628

*In no case do the above figures cover the entire shipment of apples, as they continue to be shipped long after the deciduous fruit season is closed.

OLIVES AND OLIVE OIL.†

There were very few new orchards planted in olive trees during the years 1905-1909, consequently the production of olive oil changed but slightly. The orchards that are coming into bearing are mostly varieties that are used for pickling purposes, and the production of pickling olives is increasing considerably from year to year. Since 1909 a large area has been planted. The production of olives during the last few years has increased by improved methods of irrigation and fertilization, and the industry is growing in importance, and new planting is on a considerable scale. The production is about equally divided between southern California and the territory north of Tehachapi. The harvests in California generally alternate between heavy and light, although the last few years the crops have been more uniform, due to the increased care and attention to orchards.

Not more than 35 gallons of oil are produced from a ton of olives, although some manufacturers, who have heavy presses, claim to obtain 40 gallons of oil to the ton. It takes about five and one-half pounds of olives to make one gallon of pickles. The output of pickled olives is increasing much more rapidly than the production of olive oil, as California manufacturers can not compete with foreign oil as to price.

†For further information regarding olives and olive oil, see the Report for 1913, pages 114-115.

The leading varieties now being planted in California are the Mission and Manzanillo, all other olives generally being treated as oil olives, as they are unfit for pickels.

In 1911 it was estimated that there were 18,000 acres of olives, producing about 8,000 tons of oil olives, and 4,000 tons for pickling. In 1907 the average net income was only \$17 an acre; in 1912 the average had increased to \$36.88 an acre. In 1908 the olive industry represented capital invested amounting to \$4,500,000, increased in 1912 to \$7,500,000. Formerly the by-products were more or less wasted; now oil, described as "mechanical oil," is extracted from the pomace and used to a large extent by soap and other factories. The average yield per acre in California is about one and one-fourth tons, and the average price received by the growers for the three years, 1909-1912, for oil olives on the trees was \$22 per ton. Forty per cent of the olives produced are pickling olives, and 60 per cent oil olives. The average price received by growers 1909 to 1912 for pickling olives on trees was \$62 per ton. The net average receipts by growers for pickling olives was \$53.50 per ton, and the net average receipts for both oil and pickling olives \$36.88 per acre. The amount paid to growers in 1911, for approximately 12,000 tons, was \$442,000; of this tonnage 4,000 were pickles, representing 1,200,000 gallons, and 8,000 tons of oil olives representing 280,000 gallons of oil.

In 1913 it was estimated that there were about 750,000 gallons of ripe olives, equal to 125,000 cases of 24 quart cans each. The estimated quantity of ripe olives in 1914 was about the same as the previous year.

It is exceedingly difficult to obtain reliable figures regarding olives and olive oil.

In 1916 it is estimated that the output of olive oil was about 350,000 gallons, and 150,000 cases of 24-quart cans of ripe olives. One of the principal features during the year was the demand for ripe olives, and the prices increased by leaps and bounds. There was every indication of an excellent crop, but frost came earlier than any time in the last 15 years, and caused a considerable loss.

It is estimated that the acreage of olives in the state in 1917, was as follows: Bearing trees (6 years old and over) 18,977; non-bearing trees (under 6 years) 17,063; total acreage 36,040 acres, including 2,841 acres planted in 1917. The estimated production is about 60,000 gallons of olive oil, 125,000 cases of 6 gallons each of processed, or pickled olives, and about 450 tons of salt cured olives. The past season has been a remarkably adverse one, more than half of the crop of olives being destroyed by the extreme heat of June and July.

The prices paid for olives was as follows:

Size	Price per ton
10/16 inch in diameter.....	\$40 to \$60
11/16 inch in diameter.....	100 to 150
12/16 inch in diameter.....	175 to 200
13/16 inch in diameter.....	200 to 250

Olives running less than 10/16 of an inch in diameter, and olives of larger size, but unfit for pickling by the California process, brought

from \$40 to \$80 a ton. In some cases \$125 to \$160 per ton was paid for olive orchards run on the trees.

The leading counties in the production of olives are: Los Angeles, Riverside, and San Diego in the south, and Butte and Tehama in the north, Santa Clara, Fresno and Sonoma in central California. There are large and modern plants for making olive oil and pickled olives at Oroville, Los Angeles, San Diego and Fresno.

MANUFACTURE OF OLIVE AND OTHER OILS.

According to the reports received, there were 112 concerns in the United States in 1916 engaged in the manufacture of 262,558,661 pounds of oil from peanuts, mustard seed, kapok seed, rape seed, sunflower seed, soya beans, walnuts, corn, copra, palm kernels, and olives. The movement to grow soya beans, peanuts, and other oil-bearing seeds and nuts other than cottonseed for the manufacture of oil has received a great impetus and there will probably be several hundred establishments engaged in crushing the crops grown in 1917. The following summary shows the number of establishments engaged in the production of the several oils, together with the quantity of each kind produced during the calendar year 1916:

Kind	Number of establishments	Oil produced (pounds)	Kind	Number of establishments	Oil produced (pounds)
Olive -----	22	1,336,674	Corn -----	23	93,065,391
Coconut -----	9	126,884,374	Mustard seed, rape		
Peanut -----	50	26,164,869	seed, soya bean,	14	15,067,353
			palm kernel, etc.		

THE CITRUS FRUIT INDUSTRY.

The citrus fruit industry has reached its present development in southern California, which is made up largely of San Bernardino, San Gabriel, and San Fernando valleys, and in the coast region in Orange and Los Angeles counties. There are smaller but less favorable regions in Santa Barbara and Ventura counties, close to the mountains, and in San Diego County oranges have also been cultivated from an early period, and as far as Butte County in the north, and Tulare, Fresno, and Kern counties in central California. Most of the oranges in California are now of the Washington navel variety, the remainder comprising the Valencia Late as the most important variety, with fewer of the St. Michael, Mediterranean Sweet, Thompsons, Ruby, Blood, Jaffa, Seedlings, and Tangerines.

Increase in the California Citrus Crop, 1899-1909.

From the figures of the Bureau of the Census, it appears that the orange crop of California made a gain of 145.4 per cent during the decade between 1899 and 1909, increasing from 5,882,000 boxes in 1899 to 14,436,000 boxes in 1909. During the same period of time, the number of trees in bearing have increased from 5,649,000 to 6,616,000, or 17.1 per cent. In 1910 there were also 2,093,000 trees of nonbearing age. In 1909, the average product per tree was 2.2 boxes. With respect to quantity of fruit, San Bernardino County rose from third rank in

1899 to first in 1909. In 1899 Los Angeles County ranked first and Riverside County second.

The value of the oranges produced in 1909 was \$12,952,000, an average of 90 cents per box.

The Crop of 1913-1914 and 1914-1915.

The California citrus crop for the season 1913-1914 was a record one, amounting to 48,338 cars, compared with 18,331 the previous season, when the production was greatly reduced by a killing frost, being the lowest in 12 years. Of the above carloads 45,306 were oranges, and 2,032 lemons. Previous to the season of 1913-1914 the highest was in 1910-1911, when 46,399 cars were shipped. For the season of 1914-1915 there was a large increase in the shipments of lemons and a falling off in oranges. In southern California the number of cars of lemons was 6,843 compared with 2,924 for the season of 1913-1914, while the number of cars of oranges fell from 39,024 to 33,317 cars. In northern and central California the oranges show an increase of from 6,282 the previous season to 6,427 cars, but the shipments of lemons advanced from 78 to 225 cars.

In the last few years there has been somewhat of a change in the proportion of navels shipped. For the season of 1915-1916 navel oranges averaged approximately 68 per cent of the total shipments of oranges from California.

The orange crop of northern California matures from four to six weeks earlier than it does in the southern part of the state, notwithstanding the fact that it is from 200 to 500 miles farther north. This unusual condition is due to the topography of the Pacific coast. The two large San Joaquin and Sacramento valleys in central and northern California lie between two great mountain ranges extending north and south. The Coast Range mountains shut off the modifying influences of the sea, causing relatively higher night temperatures during the summer months than prevail in the southern part of the state. The acreage of citrus fruits in Fresno, Tulare, and Kern counties was increased in 1915 by the planting of 3,000 acres, bringing the total acreage up to about 12,000 acres.

In southern California, San Bernardino is the largest producer of oranges, with 1,951,254 bearing trees; Los Angeles has 1,674,695, Riverside 1,021,957, and Orange County 478,272. In northern and central California, Tulare leads with 801,151, Butte 147,412, Fresno 85,781, Kern 80,940, and Sacramento 46,256.

Pomeloes are also grown to a considerable extent, the two leading counties being San Bernardino with 13,134 bearing trees, and Tulare with 8,114.

California Fruit Growers' Exchange.

Some idea of the size and value of the crop, and of the immense benefit derived by growers by a well-organized association, is shown by the results obtained by the California Fruit Growers' Exchange, the largest and most successful of all the cooperative institutions formed

by the fruit growers. The following tabular statement shows the total number of boxes shipped each year, the amount received, and the average f. o. b. California price per box during the last thirteen years:

Year	Boxes shipped	F. O. B. returns	Average per box
1904-05	5,188,511	\$7,124,377 00	\$1 37
1905-06	4,706,515	9,936,497 00	2 11
1906-07	6,149,708	12,268,752 00	2 00
1907-08	6,628,644	11,753,544 00	1 77
1908-09	8,710,828	13,958,990 00	1 60
1909-10	7,578,801	14,881,975 00	1 96
1910-11	10,842,790	20,708,355 21	1 91
1911-12	9,232,357	17,235,822 98	1 87
1912-13	4,940,068	13,640,091 32	2 74
1913-14	11,264,865	18,990,725 54	1 69
1914-15	11,893,076	19,523,397 72	1 64
1915-16	12,097,918	27,675,922 74	2 29
1916-17	15,492,334	33,478,130 63	2 16

The Citrus Crop, 1917.

The great damage that was inflicted on California orange growers by the heavy frost which occurred the last week in December, 1911, and the first week in January, 1912, is shown in a striking manner by the returns of the California Fruit Growers' Exchange, the shipments being only 4,940,068 boxes, compared with 9,232,357 the previous season. This large decrease was in some measure made up for by better prices, the average being \$2.74 per box, against \$1.87 for the previous year. The total receipts were only \$13,640,000, compared with \$17,235,000 the previous year, or a loss of over \$3,595,000.

The sales made by the Exchange during the last fourteen years have amounted to approximately \$226,100,000, on which business the losses due to bad debts, or in the transmission of the funds have been less than \$8,000, or about 35/10,000 of one per cent.

The orange industry in California represents an investment of about \$150,000,000.

The average annual yield on about 20 acres of orange grove from 1906 to 1911 was 157.6 boxes per acre. The average cost of labor and material in growing the oranges in 274 selected orchards was \$136.06 per acre, of which \$52.82 was for labor.

A careful estimate recently made places the production of oranges in California at 129 to 191 boxes to the acre, but there is considerable difference in the crop in various orchards.

During the year ending August 31, 1917, there were shipped from California 45,723 cars of oranges and grapefruit, and 8,107 cars of lemons, making a total of 53,830 cars. The Exchange shipped 29,828 cars of oranges and grapefruit and 6,398 cars of lemons, consisting of 12,733,550 boxes of oranges, 102,254 boxes of grapefruit, and 2,656,530 boxes of lemons. The amount of money returned by the Exchange to the shippers approximates \$33,478,000, which is nearly seven million dollars more than the largest preceding year, or an increase of approximately 33½ per cent. Using the Exchange returns as a basis for computing the value of the crop, the amount returned to California for the citrus crop equals \$67,500,000 delivered value of the entire crop.

The Orange Crop of 1917-1918.

The season 1917-1918 has been a very disastrous one to date in point of volume as compared with recent normal ones, this being due to the unprecedented heat wave which visited this part of the state last June at the time the present Navel crop was setting on the trees. As a result of this crop failure the present Navel crop will amount to approximately six thousand carloads, as against over thirty-three thousand carloads last season, or between fifteen and twenty per cent of last season's production of this variety. The heat did not seem to damage the miscellaneous varieties, such as Mediterranean Sweets, St. Michaels, Seedlings, Grapefruit, etc., to such an extent as it did the Navel variety, and shipments of these are more normal. The total of such shipments, however, during a normal year do not amount to over twenty-five hundred cars, and this year's shipments will probably be close to two thousand cars. The Valencia, or summer orange, was not at such stage of development at the time of the heat wave as to be greatly affected as far as the 1918 crop is concerned, and it is anticipated that there will be approximately 75 per cent of a normal year's crop of this variety.

On account of the heavier loading of cars the past year, due to the shortage of equipment, the carload figures do not give a true comparison of the crop with other years. The average load of citrus fruit has been increasing each year because of larger cars and the increasing amount of fruit precooled by the shippers, which is always loaded heavier.

The Exchange By-products Company, organized by the Exchange lemon shippers, has handled during the season of 1916-1917 over 5,100 tons of lemons not suitable for shipping. The season's production of high grade citric acid will exceed 175,000 pounds, which has found a ready sale. The company also manufactured and sold over 1,000 gallons of lemon and orange tincture and has carried on experimental work on several other products.

LEMONS.

Although lemons have been grown in California for half a century, it is only during the last 20 years that they have risen to considerable commercial importance. The lemon is less hardy than the orange and comprises from 10 to 15 per cent of the citrus crop.

The principal varieties of lemons grown in California are the Eureka; the Lisbon, imported from Portugal; Genoa, imported from Genoa; Villa Franca, imported from Europe, and the Bonnie Brae, grown mostly in San Diego County.

California Lemon Crop, 1899-1909.

The California lemon industry has been developed by small land-owners. There are a few groves which contain from 150 to 1,000 acres, but the average grove contains less than 10 acres. In San Diego County 100 growers own approximately 1,000 acres. In the San Dimas district 300 growers own 1,180 acres; in the Pomona district 75 growers own 344 acres; in the Santa Barbara district 70 growers own 407 acres. The newer planting of the last three years usually contain 5, 10 or 15 acres and seldom more than 20 acres. In a recent survey, including

every important district, 11,185 acres were owned by 1,179 growers; 39 growers owned between 20 and 50 acres; 6 growers, 50 to 100 acres; 8 growers, 100 to 250 acres; 1 grower, 250 to 500 acres, and 2 growers owned more than 500 acres.

The average annual yield on about 4,500 acres of lemon orchards from 1906 to 1911 was 196.2 boxes per acre. The average value of land and water adapted to lemon culture in California is \$450 per acre, and the cost of bringing a grove into bearing at six years of age, varies from \$800 to \$1,500 per acre, a fair average being \$1,000. In 1909 there were approximately 22,000 acres of lemons in California; in 1912 there were 31,478 acres.

The lemon crop increased from 874,000 boxes in 1899 to 2,716,000 boxes in 1909, a gain of 1,842,000 boxes, or 210.7 per cent, although for the same period the reported number of trees of bearing age decreased from 1,493,000 to 927,000, or 38 per cent. The number of trees of non-bearing age in 1910 was 377,000. The number of boxes per tree in 1909 was 2.9; in 1899, it was just under three-fifths of one box. The value in 1909 was \$2,926,000, or \$1.08 per box.

The year 1915 was the most disastrous in the history of the lemon business, the California lemon crop having been marketed at a loss of approximately 30 cents per packed box to the grower. This result was due to several causes, the crop being the largest ever produced in California, and a heavy supply of stored fruit, much of which was in bad condition.

Practically all imported lemons come from Sicily, where the production is very large, the exports being estimated in 1911 at 57,030,543 pounds, or the equivalent of about 23,763 California carloads.

Pomelo or Grapefruit.

The pomelo or grapefruit was formerly almost exclusively grown in Florida, but its cultivation has increased in recent years, and considerable quantities are produced in Riverside, Tulare, San Diego, and other citrus counties. The leading varieties are the Nectar, Imperial, Marsh, Seedless, and Triumph.

Citron of Commerce.

The citron of commerce was grown by the Missions in the early days, but now is cultivated only to a small extent in Riverside County. At one time there was a grove of 21 acres in Los Angeles County, but it was neglected and five years ago was replaced by orange, avocado, and other trees. At the present time there is only one orchard producing this fruit on a small scale, but it is reported as a success.

THE FLORIDA CITRUS CROP.

Florida is at present the only competitor with California in the United States in the production of oranges, although in recent years citrus fruits are being produced on a small scale in Arizona, Louisiana, and Texas.

Florida Citrus Trees in Bearing, 1890, 1900, and 1910.

	1890	1900	1910
Orange -----	2,725,272	2,552,542	2,766,618
Lemon -----	85,052	22,691	11,740
Lime -----	17,069	41,741	45,369
Pomelo -----	3,135	117,336	653,213
Citron -----	2,480	-----	23,234

Florida first took the lead in the production of citrus fruits in this country, but the "great freeze" of December, 1894, and February, 1895, when the temperature at some places fell to 14 and 18 degrees, was a disaster from which they are only now fully recovering. From 6,000,000 boxes shipped before the frost, the number fell the following year to 75,000.

Florida Orange Crop, 1899-1909.

The production of oranges in Florida increased from 273,000 boxes in 1899 to 4,853,000 boxes in 1909, a sixteenfold gain. The number of trees of bearing age was 2,553,000 in 1900 and 2,766,618 in 1910, an increase of 7.8 per cent. The number of trees of nonbearing age in 1910 was 1,098,000. The value in 1909 was \$4,305,000, or \$1.11 per box.

Florida Lemon Crop, 1899-1909.

The lemon crop increased from 2,359 boxes in 1899 to 12,367 boxes in 1909, a gain of 10,008 boxes, a fourfold gain. The number of trees of bearing age reported decreased from 22,691 in 1900 to 11,740 in 1910, or almost one-half. The number of trees of nonbearing age in 1910 was 7,329. The value of the lemon crop in 1909 was \$13,753.

Orange and Lemon Crops of California and Florida, 1909-1910.

(From the Bureau of the Census.)

Orange and lemon trees of bearing and nonbearing age in 1910, and number of boxes of oranges and lemons produced in 1909, together with the value thereof, 1910:

	California	Florida
Oranges—		
Number of trees of bearing age, 1910.....	6,615,929	2,766,618
Number of trees of nonbearing age, 1910.....	2,093,101	1,097,896
Number of boxes produced in 1909.....	14,436,424	4,852,967
Value, 1909	\$12,925,291	\$4,304,987
Lemons—		
Number of trees of bearing age, 1910.....	927,130	11,740
Number of trees of nonbearing age, 1910.....	376,859	7,329
Number of boxes produced in 1909.....	2,715,974	12,367
Value, 1909	\$2,925,759	\$13,753
Pomeloos or grapefruit—		
Number of trees of bearing age.....	43,427	653,213

Florida Citrus Fruit Crop, 1894-95 to 1916-17.

Season	Oranges, boxes	Lemons, boxes	Season	Oranges, boxes	Lemons, boxes
1894-95	2,808,474	*713	1906-07	2,899,390	10,065
1895-96	147,000	*	1907-08	3,793,126	6,718
1896-97	216,579	1,800	1908-09†	5,250,000	
1897-98	357,960	1,006	1909-10†	6,100,000	
1898-99	1,250,000	2,200	1910-11†	4,600,000	
1899-1900	972,589	1,447	1911-12	4,708,350	
1900-01	1,350,700	1,900	1912-13	8,125,349	
1901-02	972,589	1,447	1913-14	7,946,000	
1902-03	1,465,306	5,185	1914-15	9,700,000	
1903-04	1,950,823	4,131	1915-16	8,370,000	
1904-05	2,363,058	14,433	1916-17 (estimated)	6,934,290	
1905-06	2,961,195	8,299			

*The year of the "great freeze," when the temperature fell to 14 degrees at Jacksonville and 18 degrees at Tampa on December 23, 1894, followed by one equally severe in February, 1895, which killed most of the citrus trees in the state.

†The figures for the last six years include lemons, the quantity being so small that separate records are not kept. Limes, grapefruit, and tangerines are also included. In the season 1909-10, there were about 7,100 boxes of lemons, 12,600 boxes of limes, and 553,000 boxes of grapefruit. The total for the season 1911-12 includes 310,000 boxes of grapefruit, and 156,000 boxes of tangerines; also limes and lemons, the quantities of which are comparatively small.

In 1915 the number of orange trees in bearing was estimated at four million, and nonbearing one million. Grapefruit trees in bearing two and one-half million, nonbearing two million. Lemons are no longer grown commercially, but the number of limes is rapidly increasing.

In 1916 the Florida growers adopted five varieties of ranges as standard, viz: Parson Brown, Homosassa, Pineapples, Valencias and Lue.

In 1916-1917 a crop of ten million boxes was expected, but the heavy freeze seriously damaged the orchards. The total crop was estimated at 4,007,930 boxes of oranges, 2,489,480 boxes of grapefruit, and the balance of 436,880 in tangerines and mixed.

CITRUS BY-PRODUCTS IN CALIFORNIA.

During the last year or two considerable progress has been made with a view to utilize the cull oranges and others not suitable for sale. There are several factories where orange marmalade is manufactured. One plant is at Anaheim, and another is being established at San Dimas. At Redlands there is a factory that manufactures all varieties of citrus fruit products, essential oils, emulsions and orange juice. Orange peels in alcohol, and in brine, citrate of lime, tincture, and fluid extract of orange, lemon and grapefruit, syrup and dried orange and lemon peel.

THE CALIFORNIA RAISIN INDUSTRY.†

One of the largest and most important branches of fruit growing is the cultivation of the raisin grape, the acreage in which is now by far the largest in the world.

Raisins were first produced on a considerable scale in the southern part of the state, but Orange and Riverside counties no longer produce raisins; Los Angeles County very few; Yolo County, which at one time produced Sultanias and Thompson's Seedless in considerable quantities, now finds it more profitable to ship a large portion of the crop as table

†For the early history of the raisin industry in California, see Reports for 1911 and 1912.

grapes, while the vineyards in Riverside and San Bernardino counties are nearly all in wine grapes.

Counties Where Raisins Are Produced.

Of the fifty-eight counties in California, less than a dozen produce raisins in commercial quantities. At the present time the proportion of an average crop raised by each county is estimated to be approximately as follows:

The counties producing raisins in commercial quantities are as follows, the average proportion can be seen in the tables below, giving the amount of the crop for the last two years: Fresno, Tulare, Kings, Sutter, Madera, Yolo, Yuba, San Bernardino, San Diego, Stanislaus and Merced.

Since the year 1913 the raisin crop has kept on steadily increasing. The crop in 1912 amounted to 170,000,000 pounds, but fell in 1913 to 130,000,000 pounds, until last year, when it amounted to the enormous total of 264,000,000 pounds. The exports have been exceedingly satisfactory, increasing from 14,000,000 pounds in 1914, to 24,000,000 pounds in 1915, and 75,000,000 pounds in 1916. The crop would have been the largest on record, but rains damaged Muscats so that the loss was estimated at 25 per cent, and drying was not completed until December, Thompson's and Sultanas, being earlier, escaped damage.

When raisins were first shipped East in any quantity it is impossible to say. In 1875, New York reported that up to November 1, 6,000 22-pound boxes of California raisins had been received. About 1888 Fresno appears to have shipped a considerable quantity for the first time.

The California Associated Raisin Company of Fresno now controls almost the entire acreage in raisin grapes, or 88 per cent of the total acreage in the state, the contracts signed in 1916, which run for six years, amounting to 154,833 acres, as follows:

Varieties	Acres
Muscats	97,667
Thompson's	35,725
Sultanas	7,835
Malagas	12,259
Feherzagoes	1,281
Black grapes	66
Total	154,838

The Malagas do not represent a great deal in raisin tonnage, as a large proportion of them are shipped green as table grapes.

A recent consular report states that a large Canadian importer recently said that the California raisin was far superior in quality and appearance to any that he ever purchased in Europe; that they are far better packed, and are more attractive than the Spanish fruit, for which reason customers are willing to pay a little more.

Raisin Grape Varieties.

The varieties of raisin grapes are few in number. The Muscat of Alexandria and the Muscatel Gordo Blanco hold the first place, while Malaga and Feherzagoes are used to a small extent; the seedless varieties are Thompson's Seedless and Sultanas, and the Zante currant.

Owing to the war the imports of Sultanas or Seedless raisins from Smyrna, in Asia Minor, which used to be an important item, amounting in 1906 to upwards of 7,000,000 pounds, fell in 1915 to 1,056,000 pounds, and in 1916 none were imported.

Estimated Production by Varieties, 1913-1916 (Pounds).

Varieties	Crop, 1913	Crop, 1914	Crop, 1915	Crop, 1916
Muscats	98,588,798	120,000,000	157,246,000	178,000,000
Thompson's Seedless	18,390,922	36,000,000	23,330,000	47,000,000
Sultanas	12,252,430	18,000,000	11,190,000	14,000,000
Malagas			1,342,000	
Feherzagoes	529,707	8,000,000	504,000	11,000,000
Black grapes			1,288,000	
Other varieties	238,143			
Bleached Thompson's Seedless				14,000,000
Totals	130,000,000	182,000,000	194,900,000	
Additional outside			61,100,000	
			256,000,000	264,000,000

Comparative Prices per Ton.

Varieties	Average price paid by G.-H. Co., 1909 to 1912, per ton	Price paid by California Associated Raisin Company			
		1913, crop, per ton	1914, crop, per ton	1915, crop, per ton	1916, crop, per ton
Muscats	\$56 25	\$69 30	\$66 20	\$72 72	\$84 18
Thompson's	69 40	78 27	92 50	99 67	131 51
Sultanas	55 60	65 66	77 28	88 81	118 10
Malagas	43 80	60 00	50 00	60 00	76 12
Feherzagoes	38 80	50 00	50 00	60 00	61 09

Estimated Production of Raisins, 1915, by Counties.
(Pounds.)*

County	Muscats	Thompson's	Sultanas	Malagas	Feh- zagoes	Dried grapes	Total
Fresno -----	127,528,000	17,972,000	7,192,000	1,026,000	478,000	1,236,000	155,806,000
Kings -----	16,240,000	1324,000 488,000	886,000				17,100,000
Tulare -----	10,178,000	2,980,000	8,218,000	226,000	10,000	2,000	16,564,000
Madera -----	1,656,000	28,000	20,000	64,000	16,000		1,784,000
Yuba -----	68,000	44,000					1,588,000
San Bernardino-----	940,000	11,476,000 8,000	361,000				1,312,000
Merced -----	6,000	74,000	6,000	24,000			110,000
Stanislaus -----	60,000		4,000	2,000			66,000
San Diego -----	570,000						570,000
Totals -----	157,246,000	23,380,000	11,190,000	1,842,000	504,000	1,238,000	194,900,000
Additional outside-----							61,103,000
							256,000,000

*Yolo and Yuba counties also produce raisins.

†Bleached.

Estimated Production of Raisins, 1916, by Counties.
(Pounds.)

County	Muscats	Thompson's Seedless	Sultanas	Bleached Thompson's Seedless	Malagas, Fehzagoes, Black grapes	Total ¹
Fresno -----	141,400,000	40,800,000	9,600,000	6,000,000	9,200,000	207,000,000
Tulare -----	13,500,000	5,000,000	3,400,000		1,000,000	22,900,000
Kings -----	16,500,000	500,000	800,000		20,000	17,820,000
Sutter -----	*200,000	160,000	20,000	8,000,000		8,320,000
Madera -----	2,500,000	200,000	20,000		600,000	3,320,000
Kern -----	1,500,000	60,000				1,560,000
San Bernardino-----	1,200,000		140,000			1,340,000
San Diego -----	1,200,000					1,200,000
Merced -----		300,000	20,000		160,000	480,000
Stanislaus -----		40,000			20,000	60,000
Totals -----	178,000,000	47,000,000	14,000,000	14,000,000	11,000,000	264,000,000

¹Includes about 9 tons of Thompsons from Yuba County, the vineyards in this county being nearly all nonbearing, having been planted only in the last two or three years. In 1916 Yolo County reported 200 tons of Muscat raisins, 200 Thompsons, and 800 tons of Sultanas.

Fresno is far beyond all other counties in the production of raisins of all varieties, but Sutter County has more bleached Thompsons than Fresno County.

Estimated Production of Raisins, 1917, by Counties.
(Tons.)

County	Muscats	Thompson's	Sultanas	Malagas, Black grapes and Fehzagoes	Total ¹
Fresno -----	81,500	30,000	6,250	6,000	123,750
Kings -----	11,000	350	575	100	12,025
Tulare -----	9,000	6,500	3,100	1,500	20,100
Kern -----	750	200			950
Madera -----	1,000	150	25	250	1,425
Merced -----	10	350	15	150	525
Stanislaus -----		150	25		175
Sutter -----	75	2,000	10		2,085
Yolo -----		800			800
San Bernardino -----	315		500		815
San Diego -----	350				350
Totals -----	104,000	40,500	10,500	8,000	163,000

¹About 20 per cent should be added for raisins packed outside the association.

Consumption of Raisins.

Efforts have been made, especially in recent years, to increase the consumption of raisins, and there is no reason why they should not prove successful, as there is ample room for a greatly extended use of this wholesome fruit. The United Kingdom, with a population of less than half that of the United States, consumes annually about 73,000,000 pounds of raisins and 142,000,000 pounds of currants, or a total of about 215,000,000 pounds, equal to five pounds per capita. In the United States the consumption is less than one pound and a half per capita. On other words, if the American public appreciated raisins as they have been for centuries in Europe, the acreage in raisin grapes might be more than doubled without causing overproduction.

It was in 1892 that the California raisin crop first equaled that of Spain, and it has been increasing the difference ever since. Fresno County alone now produces nearly five times the quantity of raisins produced in Spain, which held the lead for centuries.

The Spanish raisin crop in 1915 only amounted to 7,500 tons, or the lowest on record, as the summary below will show. The prices ranged so high, however, that the growers made more money than they have for years. Starting in September with quotations of from \$6.75 to \$9.65 per hundredweight of 112 pounds, according to the grade, they finally reached \$8.68 to \$13.50, respectively.

The Raisin Crop of the World—1904-1917.

Year	Short tons of 2,000 pounds. California	In long tons of 2,240 pounds			Australia (Victoria and South Australia), pounds	
		Spain	Turkish Sultanas	Greek currants	Raisins	Currants
1904	40,000	25,000	34,100	151,000	7,449,116	2,004,427
1905	37,000	28,200	58,300	160,000	4,367,181	2,093,076
1906	45,000	15,800	27,500	135,000	6,148,168	2,346,960
1907	70,000	27,000	47,000	156,000	12,796,000	2,922,192
1908	65,000	26,000	45,000	185,000	10,427,760	3,404,464
1909	70,000	24,900	50,000	185,000	10,924,816	4,074,336
1910	56,000	19,000	15,000	123,000	12,191,424	7,107,520
1911	51,000	15,000	25,000	157,000	12,775,056	7,465,360
1912	85,000	12,000	50,000	167,000	15,408,400	10,470,208
1913	65,000	18,500	30,000	161,000	16,231,600	11,261,040
1914	91,000	13,500	*	145,000	17,455,312	12,462,016
1915	128,000	12,500	*	125,800	16,386,832	5,969,712
1916*	132,000	5,500	*	88,000	26,883,696	15,352,288
1917*	163,000	11,500	*	140,000	†	†

*No reliable figures owing to the war. About 20 per cent should be added for raisins packed outside the Association.

†Figures for 1917 not yet available.

Raisins and Currants in Australia.

The raisins and currants produced in Australia are mostly consumed at home. The quantity at present, though not large, is increasing. Victoria and South Australia are the two states with the largest production. In raisins, Victoria is the largest producer. In 1916, Victoria produced 20,171,648 pounds, and South Australia 6,712,048 pounds. In the production of currants the two states are nearly equal; in 1916, Victoria produced 7,902,272 pounds, and South Australia 7,450,016 pounds.

California Seeded Raisin Industry, 1896-1917.

Fresno County is the center of the seeded raisin industry, where it originated.

Year	Tons	Year	Tons
1896	700	1907	26,000
1897	3,500	1908	24,000
1898	7,000	1909	28,000
1899	12,000	1910	31,500
1900	14,000	1911	33,000
1901	14,000	1912	43,000
1902	16,000	1913	49,000
1903	18,000	1914	35,000
1904	18,000	1915	50,000
1905	21,000	1916*	96,400
1906	24,000	1917*	82,900

*About 20 per cent should be added for raisins packed outside the association.

Loose raisins are packed in 50-pound boxes; Thompson's Seedless in 12-ounce cartons, 45 to the case; seeded raisins in one-pound cartons, 36 to the case; also in 12-ounce, 45 to the case and a few in bulk in 25-pound boxes. Raisin clusters are packed in 5, 10 and 20-pound boxes.

Wooden trays for drying raisins. The Australian vineyardists have discarded the wooden tray for drying, and use wire netting under cover. It is said that they find that dry air and not sunlight accomplishes the best drying, and preserves the natural color better, and it was found that wire netting made good trays, and cost half that of wooden trays. The driers are roofed affairs, often extending clear across a vineyard or orchard. They are simply constructed. Posts of native timber are set about nine feet apart, and light 1 by 1½ inch pieces are nailed across them. A roof of sheet steel is placed above, and 10 to 12 framed net wire trays are laid in tiers about nine inches apart, one above the other on the crosspieces. The rain is kept out, and the air has free circulation.

THE GREEK CURRANT.*

The Greek or Zante currant has been produced on a very large scale for centuries. They are the seedless variety of a peculiar dwarf grape-vine producing a small black grape, or currant, of a peculiar flavor. It is the most important crop in Greece, as it forms nearly one-half of the total exports. The vineyards cover 150,000 acres, and produce the enormous total of from 300,000,000 pounds to 340,000,000 pounds in a favorable season.† About 33,000,000 pounds are imported annually. In 1916 the crop was very short, being estimated at 88,000 tons, and prices were high.

Greek Currants in California.‡

That the grapes from which the Greek or Zante currants are made can be grown in California has long been known. Until lately the possibility of their profitable cultivation has been doubted.

*For details regarding the Greek currants and the "Privileged Company" which controls and markets the crop, see Report for 1912, page 140.

†By Professor Frederic T. Bioletti, University of California.

Two varieties are used—the Black Corinth and the White Corinth. The latter is not widely grown in Greece and produces currants of somewhat larger size, but of poorer quality, than the former. It has been grown commercially for many years in California and some of the growers have found it profitable.

The chief source of Greek currants is the Black Corinth, which also has been grown in California for many years. No large commercial success has been obtained with this variety, however. The reason is that the conditions and methods of growing tested have failed to produce paying crops. This seems to be due to excessive vigor of the vine, which causes it to drop its blossoms without setting.

The Black Corinth grows in poor, stony soil in Greece and yields fair crops. Perhaps it might do well in soils too thin for other grapes in California. Grafted and ungrafted vines of both varieties for some years have been growing at Davis and Kearney and the crops of 1916 are interesting. The table herewith gives a summary of the results.

These vines are four and five years old and are pruned and trellised in the way usual for Sultanina or Thompson's Seedless. The crop of ungrafted White Corinth was excellent, but the ungrafted Black Corinth produced practically nothing. All the grafted vines of both varieties produced excellent crops except the Black Corinth on St. George. The stock Riparia X Rupestris 3306 gave particularly good results with both varieties.

The growing of the crop is evidently possible. The next question to be solved is whether the currants can be marketed profitably in competition with those produced in Greece.

Crop of Black and White Corinth in Tons of Currants per Acre.

	1916	1917
Black Corinth, ungrafted, Davis.....	.127	.86
Black Corinth, grafted on St. George, Davis.....	.408	.333
Black Corinth, grafted on Riparia, Davis.....	1.488	1.275
Black Corinth, grafted on Riparia, Kearney.....	1.451	.825
Black Corinth, grafted on 41B, Davis.....	1.160	.786
Black Corinth, grafted on 41B, Kearney.....	1.596	1.553
Black Corinth, grafted on 3306, Kearney.....	1.592	1.075
White Corinth, ungrafted, Davis.....	1.579	1.085
White Corinth, grafted on St. George, Davis.....	1.064	.495
White Corinth, grafted on St. George, Kearney.....	2.360	.806
White Corinth, grafted on 3306, Davis.....	2.385	.756
White Corinth, grafted on 3306, Kearney.....	2.440	1.525

NOTE.—The vines were injured by frost in the Spring of 1917, and as the grafted vines started first, they were more badly injured than the ungrafted.

Small Fruits.

Of the small fruits strawberries lead, both in acreage and production, California being the largest producer in the West, the greatest production being in Santa Clara County. The shipments of strawberries in 1914 was estimated at 2,312 carloads from the districts named. Raspberries and loganberries, and blackberries and dewberries rank second and third, respectively.

According to the Census Reports the acreage of small fruits in 1909 was 9,687 and in 1899 it was 6,281, an increase of 54.2 per cent. The

production in 1909 was 26,824,000 quarts, as compared with 14,582,000 quarts in 1899, and the value was \$1,789,000 in 1909, as compared with \$911,000 in 1899.

Strawberries, 1914.

	Carloads		Carloads
Los Angeles section (March 1 to December 1)—		Santa Clara-Santa Cruz section (April 1 to December 1)—	
Puente	177.0	Gilroy, Sargent, Vega.....	1,010.0
Gardena	119.0	Watsonville	242.0
Moneta	46.0	Alviso	173.0
Irwindale	17.0	Mountain View	19.0
Azusa	14.0	Pajaro	17.0
Glendora	5	Aromas	14.0
		Niles	13.0
Total	373.5	Palo Alto	12.0
Sacramento section (March 25 to August 15)—		Salinas	7.0
Florin	249.0	Agnews	6.0
Elk Grove	6.0	San Carlos	6.0
		Capitola	4.0
Total	255.0	Lawrence	4.0
Placer County section (April 1 to June 1)—		Irvington	3.0
Newcastle	43.0	Menlo Park	2.0
Bowman	12.0	Total	1,532.0
Loomis	10.0	Siskiyou section (May 20 to July 15)—	
Sebastopol	9.0	Pioneer	31.0
Penryn	2.0	Sisson	2.5
Total	76.0	Total	33.5
Fresno section (April 1 to August 15)—		State total	2,312.0
Fresno	42.0		

The figures for the year 1914 are probably too high, as it is believed that a number of the cars reported shipped were less than carload shipments. Furthermore, the movement from one important section of the state was largely by boat in 1915, and no record has been obtained, whereas this area furnished a large part of the movement as reported by the railways in 1914. The berries handled by electric lines which do not move in standard carloads also constitute an element of uncertainty.

Strawberries, 1915.

	Carloads		Carloads
Los Angeles section (March 1 to December 1)—		Santa Clara-Santa Cruz section (April 1 to December 1)—	
Gardena	27	Alviso	175
Sacramento section (March 25 to August 15)—		Watsonville	174
Sacramento	50	Aromas and Vegas.....	80
Florin	48	Gilroy	6
		Total	435
Total	98	Siskiyou section (May 20 to July 15)—	
Placer County section (April 1 to June 1)—		Sisson	16
Newcastle	3		
Fresno section (April 1 to August 15)—		State total	418
Fresno	56		

Acreage and Production of Strawberries in 1916-1917.

The above are the leading producing districts, but it must be kept in mind that these data cover only the 1914-1915 shipments, and that seasonal variation is so great that in some cases these figures may be far in excess or much below the usual shipments. The acreage in strawberries in 1916 was estimated at 4,750 and the production 395,800 crates, and the total in the United States, 65,900 acres.

The cultivation of named varieties of blackberries was begun about 1850, and since that time at least 140 different named varieties have been introduced. In 1910 the acreage in California was 2,576. The largest state acreage was in Missouri and New Jersey, with 5,975 and 4,332 acres, respectively; the total acreage in the United States amounting to 49,004 acres.

Currants are only grown in about eight states, California being one of them, Alameda County being the largest producer; gooseberries are not much grown anywhere in the United States, Indiana being the largest producer.

Cranberries only acquired commercial importance fifty or sixty years ago. They are principally grown in Massachusetts, New Jersey, and Wisconsin, and are not a success in California.

CANTALOUPE, OR MUSKMELONS, AND WATERMELONS.

It is not realized, generally, by cantaloupe growers, to what extent the commercial production of this fruit has advanced during the last ten years in all the states where they are raised. The number of cars shipped in the United States in 1914 amounted to 16,401. California is by far the largest producer.

The Imperial Valley is the earliest and probably the most important muskmelon-growing district in the United States today. The growth in production since 1905 has been remarkable, the increase being very close to 1,600 per cent in the ten years. During the season of 1915, 8,156 acres were planted to muskmelons. The average yield was 185 crates of marketable melons per acre, producing 4,722 carloads of 320 crates each.

The Turlock district in Stanislaus County, in the San Joaquin Valley, produces large quantities, and the district is notable in that it is the only Western muskmelon section not depending upon surface irrigation. The crop was not generally very profitable prior to 1915. Shipments were limited by unsatisfactory market conditions in previous years, and only a portion of the crop was moved. In 1915 the markets were good, and shipments continued for a long season, car lots going out from July 20 until October 4. The shipments were as follows:

	1914	1915
To the East	539	1,350
To the West	120	204
Totals	659	1,554

The acreage was substantially the same in both years, and the production about the same.

The following summary shows the leading districts in Imperial Valley where they are grown:

California Shipments in 1914 (May 15 to August 1).

	Carloads		Carloads
Brawley -----	2,411	Sultana -----	26
Heber -----	777	Coachella -----	21
Keystone (Grape) -----	606	Thermal -----	20
Turlock -----	524	Imperial -----	4
Calexico -----	438	Meloland -----	3
Keyes -----	164		
El Centro -----	152	State total -----	5,146

Increase in Shipments from Imperial Valley, 1905-1915.

	Carloads		Carloads
1905 -----	297	1911 -----	2,580
1906 -----	577	1912 -----	2,887
1907 -----	644	1913 -----	3,502
1908 -----	1,891	1914 -----	4,448
1909 -----	1,411	1915 -----	4,722
1910 -----	1,621		

The acreage in California in 1915 was estimated to be 11,674, and for the United States 41,981 acres. In watermelons California had 5,503 acres, and the United States 96,508 acres.

In 1916 the acreage in cantaloupes in the state was estimated at 16,300 and that of watermelons 4,500 acres. The total acreage in the United States being 39,700 of the former, and 98,100 of the latter. In 1917 the acreage in cantaloupes in California was 17,300, and in watermelons 3,600 acres.

TABLE XXXIV.

ACREAGE OF THE PRINCIPAL FRUITS IN FORTY-EIGHT OF THE FRUIT COUNTIES OF CALIFORNIA.

Compiled from Reports of the County Horticultural Commissioners by Geo. P. Weldon, Chief Deputy, and O. W. Newman, Assistant Secretary, State Commission of Horticulture, Report for 1917.

County	Almonds		Apples		Apricots		Berries	Cherries		Figs	
	Bearing	Nonbearing	Bearing	Nonbearing	Bearing	Nonbearing		Bearing	Nonbearing	Bearing	Nonbearing
Alameda	885	55	200	60	3,905	1,080	188	757	45		
Butte	4,150	1,575	490	315	40	12	87	72	35	90	47
Colusa	680	8,550			30	50				20	
Contra Costa	2,100	900	200	50	280	215		120	100		
El Dorado			350	225				80	40		
Fresno*			250	30	2,187	613				2,919	
Glenn	550	1,250	100	100	200	350	50			50	300
Humboldt			1,700	700		20	100	10			
Imperial					184		95			38	
Inyo			1,000	15,000	20	25	100				
Kern	50	140	100	2,075	230	300				14	97
Kings*					2,118	457					
Lake	118	425	285	10	31	2	20	10	1	10	1
Los Angeles	1,685	385	1,440	719	2,567	1,400	5,000	6		439	317
Madera	50	85	200	50	200	156	20			275	440
Marin	10		150	20	30	15	20	15			
Monterey	60	187	2,980	525	490	870	100	10	6		
Mendocino			650	345	30	50		50	35	20	25
Merced	750	1,300	50	20	250	140	50	8	7	875	1,235
Modoc			400	220	10	5	40	18	9		
Napa			750	50	200	100	20	300	250		
Nevada	30		800		10		70	60		20	
Orange			200	160	900	200	200				
Placer	250	125	450	25	50	65	400	350	200		
Riverside	983	740	1,123	2,639	3,721	5,549	14	129	363	21	10
Sacramento	1,400	565	440	80	500	70	1,075	440	200		
San Mateo			100								
San Benito	135	139	146	76	854	3,132	200	75	25		
San Bernardino	5	60	2,101	6,592	1,817	845	20	58	171	2	10
San Diego	85	43	1,130	436	163	272		9	20	10	22
San Joaquin	2,423	1,654	117	35	578	199		314	434	64	27
San Luis Obispo	500	4,998	322	619	202	440	20	5	44	4	
Santa Barbara			425	150	180	100		175	140		
Santa Clara*	258	80	400	443	8,561	457	1,000	1,970	2,000	39	21
Santa Cruz			15,800	900	1,500	1,000	400	150	275		
Shasta	37	5	200	153	8	20	120	6	14	6	6
Siskiyou	3	1	680	350	10		100	50	25		
San Francisco											
Solano*	1,000	415			1,300	150		700	300		
Sonoma	85	25	4,835	2,307	550	120	575	615	512	58	4
Stanislaus	2,021	943	200	39	732	315	269	239	18	429	612
Sutter	2,166	733	157	25	23			42	88	179	
Tehama	427	434	215		301	173		20	5	95	
Tulare											
Ventura	143	85			3,055	3,313					
Yolo	5,554	3,200	38		1,569	232	5	30		181	181
Yuba	235	200	430	75	80	25	100	25	25	120	300
Totals	23,333	24,164	41,584	36,118	39,599	22,637	10,408	7,447	5,337	6,022	3,655

*Figures taken from the 1916 table.

TABLE XXXIV—Continued.

ACREAGE OF THE PRINCIPAL FRUITS IN FORTY-EIGHT OF THE FRUIT COUNTIES OF CALIFORNIA.

Compiled from Reports of the County Horticultural Commissioners by Geo. P. Weldon, Chief Deputy, and O. W. Newman, Assistant Secretary, State Commission of Horticulture, Report for 1917.

County	Lemons		Olives		Oranges		Peaches	
	Bearing	Nonbearing	Bearing	Nonbearing	Bearing	Nonbearing	Bearing	Nonbearing
Alameda	10		41		18		120	
Butte	25	40	2,080	3,235	1,700	168	2,000	175
Colusa		800			40	900		
Contra Costa			143	5			550	120
El Dorado			18	15			300	325
Fresno*	75		502		1,788		35,000	
Glenn	58	150	45	350	65	800	540	300
Humboldt							75	30
Imperial	19		84		76			
Inyo							450	300
Kern		30	40	890	450	1,150	630	450
Kings*				399			7,133	801
Lake			55	1			150	60
Los Angeles	8,801	1,270	1,886	204	23,220	9,235	3,490	3,716
Madera			300	775	10	4	1,450	265
Marin							25	30
Monterey							90	20
Mendocino							150	200
Merced	10	9	202	186	61	29	4,600	900
Modoc							30	6
Napa			200				475	150
Nevada							370	
Orange	4,000	2,300	180		10,500	8,000	80	70
Placer	20		320	10	315	15	7,500	600
Riverside	3,137	2,395	1,475	860	16,963	2,633	2,332	1,273
Sacramento	25	20	800	800	1,100	700	2,650	925
San Mateo								
San Benito							170	336
San Bernardino	8,549	2,850	652	656	33,746	7,338	6,955	1,175
San Diego	3,326	930	1,550	61	1,558	132	633	337
San Joaquin	4	1	418	242	40	4	2,913	1,122
San Luis Obispo	24						52	708
Santa Barbara	1,015	240	440	105	7	5		
Santa Clara*	31	120	1,500	51	20	12	5,300	200
Santa Cruz	15						100	
Shasta		1	185	445	7	6	500	800
Siskiyou							140	30
San Francisco								
Solano*		20	20		10	20	4,200	600
Sonoma	11	9	643	363	135	10	755	451
Stanislaus			129	90	130	12	5,335	200
Sutter			50	65			5,453	689
Tehama	5	75	1,225	315	140	85	2,194	130
Tulare	1,132	1,534			19,349	14,598		
Ventura	2,327	3,980	450	75	2,040	1,602		
Yolo	7		131	262	33		1,323	232
Yuba	25	25	330	850	300	250	265	335
Totals	22,651	16,799	15,981	11,253	113,821	47,753	106,063	17,621

*Figures taken from the 1916 table.

TABLE XXXIV—Continued.

ACREAGE OF THE PRINCIPAL FRUITS IN FORTY-EIGHT OF THE FRUIT COUNTIES OF CALIFORNIA.

Compiled from Reports of the County Horticultural Commissioners by Geo. P. Weldon, Chief Deputy, and O. W. Newman, Assistant Secretary, State Commission of Horticulture, Report for 1917.

County	Pears		Plums		Prunes		Walnuts	
	Bearing	Nonbearing	Bearing	Nonbearing	Bearing	Nonbearing	Bearing	Nonbearing
Alameda	2,040		128	5	1,855	500		
Butte	225	270	45	97	3,327	2,615	30	140
Colusa	40	20	20	100	1,000	3,100	40	50
Contra Costa	850	1,250	120		700	240	60	850
El Dorado	500	1,000	300	550			20	30
Fresno*			343		981		159	
Glenn	40	600			200	1,600	85	100
Humboldt	50	90			75		80	465
Imperial	82							
Inyo	250	450	50	100				
Kern	190	1,075	50	120	200	520	5	260
Kings*					1,109	875		
Lake	600	2,000			500	770	100	700
Los Angeles	534	5,450	690	420	230	22	14,357	7,398
Madera	15	15	45	20	75	60	1	59
Marin	50	90	10		30	15		10
Monterey	105	100			40	25		
Mendocino	450	1,100			525	750		
Merced	100	20	50	55	20	150	35	157
Modoc	26	4	15	2	15	2		
Napa	500	500	175		5,000	5,000	10	50
Nevada	700	2,400	120	250			20	
Orange	25		25				11,850	2,000
Placer	2,000	610	6,300	765				
Riverside	405	596	58	39	475	191	438	1,662
Sacramento	3,300	1,700	1,500	650	300	800	25	140
San Mateo								
San Benito	147	768			1,233	2,439	63	554
San Bernardino	202	996	59	40	46	67	643	1,330
San Diego	193	242	92	30	98	38	116	637
San Joaquin	402	256	792	617	787	616	557	1,125
San Luis Obispo	141	2,439			282	990	520	175
Santa Barbara	20						5,000	600
Santa Clara*	1,530	223	2,987	153	61,611	4,722	641	259
Santa Cruz	50	400			300			
Shasta	100	31	30	240	870	450	37	63
Slakiyou	45	15	45	15	25	4	8	15
San Francisco								
Solano*	1,000	230	2,521	1,520	4,345	1,900		
Sonoma	1,150	555	108	35			317	193
Stanislaus	232	6	165	35	200	59	73	240
Sutter	109	83	83	35	1,128	2,379	15	239
Tehama	690	154	125	155	950	947		
Tulare								
Ventura					800		10,265	2,556
Yolo	975		641		1,061	1,023	46	
Yuba	495	1,100	267	200	230	600	50	20
Totals	20,548	26,840	17,942	6,248	90,723	32,965	45,597	22,577

*Figures taken from the 1916 table.

FRUIT CANNING AND PRESERVING, 1904-1917.

California made a pack of hermetically sealed fruits in tin cans in 1861. For many years after that canned goods were a luxury, relatively expensive, and used only in emergencies, on board ship or at remote places where other food was not obtainable.

The real importance and development of the canning industry did not commence until about the year 1875. The value of its products, which in 1889 was \$6,621,931, more than doubled during each of the two following decades, amounting in 1909 to \$32,914,829.

The case, which is used as the unit of measure for canned fruits and vegetables in the table below, consists of 24 standard-size cans No. 2 (also called 2-pound cans) for berries, cherries and plums, and No. 3 (also called 3-pound cans) for all fruits and vegetables.

California ranks first among the states in the production of canned apricots, peaches and pears, and of dried peaches and prunes; the state had a complete monopoly of the production of dried apricots and of raisins in the United States in 1909, neither of these being produced in any other state.

The most important of the dried fruit products, both in point of quantity and of value, were raisins and prunes. The fruit most largely canned in 1909 was peaches, the value of which constituted 9.2 per cent of the total for the canning and preserving industries.

CANNED FRUITS, 1904-1914.
(Compiled from the Census Reports.)

Product	1904		1909		1914	
	Cases	Value	Cases	Value	Cases	Value
Apples -----	31,286	\$67,591	67,710	\$136,855	110,672	\$214,021
Apricots -----	532,038	1,619,757	627,701	1,819,558	1,005,234	2,963,672
Berries -----	67,467	168,640	95,092	171,995	165,196	345,322
Cherries -----	171,298	457,169	224,084	491,575	131,252	459,005
Peaches -----	744,715	2,640,524	1,149,590	3,013,202	2,922,637	8,685,831
Pears -----	524,197	1,577,823	433,796	1,316,022	692,782	2,796,356
Plums -----	196,379	349,307	138,995	230,384	150,216	247,505
All other -----	54,215	97,272	20,013	68,750	117,608	282,407
Totals -----		\$6,978,083		\$7,248,342		\$15,994,119

NOTE.—For further detail regarding the canning industry see Manufacture, Part XII.

CANNED FRUIT PACKED, BY VARIETIES, 1913-1917.

	1913	1914	1915	1916	1917
Apples -----	31,535	93,410	81,620	213,525	271,538
Apricots -----	848,880	1,142,355	961,190	1,327,770	2,356,553
Blackberries -----	75,410	83,870	169,935	162,430	163,341
Cherries, Royal Ann -----	102,870	106,225	182,750	168,785	440,134
Cherries, black -----	27,740				
Cherries, white -----	32,055				
Grapes -----	41,665	49,685	77,610	101,130	85,491
Loganberries -----	15,735	15,900	38,559	57,390	111,093
Pears -----	529,860	806,740	827,630	1,032,810	758,142
Peaches, free -----	768,750	888,125	831,875	1,202,940	1,554,393
Peaches, cling -----	1,629,800	2,621,655	2,407,650	2,597,390	3,607,568
Plums -----	65,975	110,440	95,215	84,750	270,052
Raspberries -----	5,590	4,470	5,060	18,440	16,634
Strawberries -----	9,255	18,135	10,637	14,040	27,514
Other fruits -----	9,405	28,865	21,435	40,535	332,692
Total fruits -----	4,194,525	5,968,875	5,731,166	7,021,975	9,995,145

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The leading varieties of fruits used for canning are as follows:

Appriots—	Figs—	Plums—	Peaches—
Moorpark	Endish	Reine Claude	Clingstones:
Hemskirke	Grapes—	Green Gage	Philip
Blenheim	Muscat	Washington	Tuscan
Royal	Pears—	Damson	Golden Cling
Cherries—	Bartlett	Jefferson	Freestones:
Royal Ann	Nectarines—	Egg	Lovell
Centennial	Stanwich	Golden Drop	Muir
Rockport			Crawford
Black Tartarian			Foster

Fresno city is one of the principal centers of the canning and preserving industry of the state, in 1909 reporting nearly one-fourth of the total value of products for this industry in California and a much larger proportion of the total value of dried fruits.

Dried Fruits, 1904-1914.
(From the Census Reports.)

Dried fruits	1904		1909		1914	
	Pounds	Value	Pounds	Value	Pounds	Value
Apples -----	811,254	\$40,659	6,860,170	\$481,173	10,786,714	\$663,673
Apricots -----	19,559,573	1,410,838	29,205,569	2,277,177	39,266,294	3,602,690
Peaches -----	25,845,364	1,701,105	46,827,391	2,422,043	61,376,251	2,888,962
Prunes -----	114,580,431	3,169,878	118,917,876	4,394,922	123,586,570	7,596,549
Raisins -----	121,409,881	6,349,381	195,774,767	6,912,533	223,712,822	13,681,048
All other -----	18,102,416	1,128,740	26,140,777	1,724,468	-----	1,942,428
Totals -----	300,308,919	\$13,800,601	423,726,550	\$18,262,316	-----	\$30,735,350

Dried Fruit Packed, 1913-1917.

Varieties	Tons, 1913	Tons, 1914	Tons, 1915	Tons, 1916	Tons, 1917
Prunes -----	45,000	60,000	82,000	77,500	110,000
Raisins -----	65,000	91,000	128,000	158,000	190,000
Peaches -----	20,000	35,000	28,000	29,000	39,000
Apricots -----	9,000	20,000	16,000	10,900	16,000
Pears -----	2,000	4,000	1,000	1,000	3,000
Figs -----	3,500	5,000	7,000	6,700	9,600
Apples -----	2,500	5,000	4,000	4,500	8,000
Miscellaneous -----	2,000	5,000	1,000	1,000	2,000
Totals -----	149,000	224,000	267,000	288,600	377,600

The varieties of fruit cured by drying are as follows:

<i>Apricots</i> —	<i>Peaches</i> —	<i>Nectarines</i> —	<i>Plums</i> —
Royal	Lovell	Stanwich	Washington
Blenheim	Muir	<i>Pears</i> —	Jefferson
<i>Figs</i> —	Crawford	Bartlett	Egg
Adriatic	Foster		<i>Prunes</i> —
			Petites

Dried fruit is packed in boxes of 25 and 50 pounds, and 12½ kilos for abroad.

VARIETIES AND AVERAGE QUANTITY OF FRUIT USED IN CANNING.*

While there is a limited quantity of jams, jellies, and preserves manufactured commercially within the state, by far the larger quantity of fruit is used for canned fruit—that is, fruit that is filled into the can fresh, before cooking: sugar syrup is then put in merely for flavoring, the can is hermetically sealed and finally processed or sterilized by heat. Sugar is not essential to the keeping qualities. The preserves, jams and jellies stewed in kettles with a high percentage of sugar are not so dependent upon hermetic closure, as the sugar acts as a preservative agent. For these so-called preserves California produces suitable berries, sour cherries, peaches, plums, quinces, currants gooseberries, apples and figs and grapes. But of greater commercial importance are the fruits that are generally used for tinned or canned fruits—apricots, peaches, pears, cherries and plums.

Apples. About 2,500 tons are canned annually in California, chiefly Newtown Pippins. The average price paid is from \$10 to \$12 per ton. The apples for canning purposes come largely from Sonoma, Santa Clara and Santa Cruz counties.

Apricots. In a normal season 20,000 tons of apricots are canned in California. The average price paid to growers for the past five years has been \$30 per ton. The Royal Blenheim and Hemskirk varieties grown in Santa Clara Valley gives the best results to the canner. Moor-parks have a flavor preferred by many, and they grow to a large size.

Cherries. Royal Ann and White cherries in general are preferred. An average price would be from 5 to 6 cents per pound. About 1,200 tons of Royal Anns and Whites are used annually for canning, and probably 450 tons of Blacks.

*See address before the State Fruit Growers' Convention, Davis, June, 1914, by C. H. Bentley, Sales Manager, California Fruit Cannery Association, San Francisco.

Grapes. The Muscat or raisin grape is canned to a limited extent; about 1,000 tons are used annually at a price of about \$12 to \$15 per ton.

Nectarines. Nectarines are canned, but a very limited quantity is used, and the fresh and dried fruit markets are more desirable for this variety.

Peaches. The freestone varieties, such as the Muir and Lovell, are preferred. About 24,000 tons are canned annually with prices about \$22.50 per ton for Lovell, and \$17.50 for other varieties like the Muir and Early Crawford. In spite of the increased trouble and expense of removing the pit, Yellow Clings are the most desirable of all California canned fruits, and more of these are canned than any other variety. An average price delivered at the cannery would be about \$25 per ton for Phillips and Tuscan, and \$20 for other varieties. In the case of clings, a considerable demand has developed for slices. About 35,000 tons are used for canning.

Pears. About 20,000 tons of Bartlett pears are canned annually. The price paid to growers ranges from \$30 to \$40 per ton.

Plums. Egg plums, Green Gage, Golden Drop plums and similar varieties are used to a limited extent for canning. About 2,500 tons are used for canning, and the price is usually from \$15 to \$20 per ton.

Berries. Blackberries have been produced in large quantities, chiefly in Sonoma County, and are used extensively by canners. The Mammoth and Lawton varieties are most common. About 2,000 tons are used by canners and makers of preserves. The price has ranged about \$40 per ton. Far better results are obtained from loganberries. In its fresh form the price ranges from \$55 to \$75 per ton. Canners use about 750 tons.

Straubberries. The varieties commonly grown are comparatively soft and juicy, suitable for jams and jellies, but not for preserves. Such are the Dollar and Jessie varieties of the Florin district near Sacramento, and the Banner and Malinda berries of the Watsonville district in Santa Cruz County. The Longworth of the Alviso and Santa Clara districts has become too small to give satisfaction to the canner. These varieties ordinarily bring \$60 to \$70 per ton, while the Clarke, Wilson and other similar varieties grown in Oregon bring \$100 per ton. About 800 tons are used by canners and preservers, but a much larger quantity could be used of better varieties.

With raspberries, also, the canners find better results from Oregon fruit, because it is firmer and higher in color. The Cuthbert and Antwerp varieties are preferred for canning. Canners use about 100 tons.

Gooseberries are used in a limited way for jams and jellies.

Calimyrna and White Endish Figs are used to some extent. Texas seems to be able to grow a small white fig of good quality and this is canned to a considerable extent. There would seem to be an opportunity for development in California.

Damsom Plums are needed for preserves, jams and jellies; they bring \$35 to \$40 per ton when ordinary varieties like the Gage and Egg Plums are selling for \$15. There are very few grown at the present time.

Concord Grapes are needed for jams and jellies; the want is partly filled by the Isabella variety.

Quinces, which were for years a drug on the fall fruit market, now bring \$25 to \$30 per ton.

Crab Apples are in short supply, commanding a price of 4½ to 5 cents a pound.

Sour Cherries are also used in a limited way.

NUTS.

About three-fourths of the nuts produced in the United States are grown in California, walnuts and almonds being the principal crops.

Walnuts in the United States are produced almost exclusively in California, Orange and Los Angeles counties taking the lead.

California produces practically the whole of the almond crop in the United States.

Peanuts thrive well in southern California, chiefly on the lower lands of the coast region, while in central and northern California peanuts are mostly grown in the river bottoms of the Sacramento and San Joaquin valleys.

The pecans grow well in the lower lands of the interior valleys, but are raised in only limited quantities. The most favorable reports of pecan production on the Pacific coast have come from the interior valleys of central and northern California. Very favorable reports have been received from small orchards and scattered trees (mainly seedlings) from Chico, Woodland, Winters, Vacaville, Elk Grove, Stockton, Farmington, Patterson, Fresno, and Bakersfield. Reports from Anaheim and Whittier, in southern California, where great trouble is experienced with pecan rosette, have been much less encouraging. In the opinion of one of the leading practical horticulturists of the San Joaquin Valley, the pecan offers greater inducements for that particular section than does the almond or the walnut (Persian).

Almonds.

The production of almonds in California in 1914 was 5,000,000 pounds, compared with 2,200,000 the previous year. In 1915 it amounted to 7,000,000 pounds. The crop for 1916 to 6,600,000 pounds and the quality was very good. In 1917 the crop amounted to 8,000,000 pounds, which was extremely light, in 20 out of 22 important almond sections, but the new acreage in bearing brought the total production of the state to the highest on record. California is the only state in the Union producing almonds commercially, and about 75 per cent of the crop is controlled by the California Almond Growers Exchange.

Almond Crop, 1910-1917.

	Pounds			Pounds	
1910	6,600,000	1914	4,500,000		
1911	2,900,000	1915	7,000,000		
1912	6,000,000	1916	6,800,000		
1913	2,200,000	1917	8,000,000		

Prices Received by Almond Growers, 1912-1917.

Grade	Price, cents, 1912	Price, cents, 1913	Price, cents, 1914	Price, cents, 1915	Price, cents, 1916	Price, cents, 1917
Nonpareil -----	13	17½	18	13	17½	17½
I X L -----	12½	17	16½	12	14½	16
Ne Plus Ultra -----	11½	16	15½	11	13½	15
Drake Seedling -----	9½	13	13	9½	13	12½
Hardshell -----	7	8½	8	7	8	8

Walnuts, 1912-1917.

The acreage in walnuts in 1916 was estimated at 42,670 bearing and 16,000 nonbearing, and in 1917 44,981 acres in bearing and 16,700 nonbearing. During the last five years the crop has been as follows:

Year	Pounds	Year	Pounds
1912 -----	22,024,000	1915 -----	29,634,000
1913 -----	22,378,000	1916 -----	29,244,000
1914 -----	17,778,000	1917 -----	30,810,000

The value of the walnut crop in 1917 amounted to \$6,909,600; unshelled walnuts amounting to \$6,044,600, and the shelled to \$865,000.

New walnut producing areas are being developed, and very heavy plantings are being undertaken in several sections, in the San Joaquin Valley and other valleys in the state, and probably one-third of the plantings of the past season have been made north of the Tehachapi. Within the past year there have been at least 3,000 acres planted to walnuts in the San Fernando Valley.

The English walnut is the greatest nut grown in the state, judged by the size and value of the crop. It is almost entirely grown in the four southern counties of Santa Barbara, Los Angeles, Orange and Ventura.

The production of walnuts has doubled in the last ten years, until the domestic supply produces half the quantity consumed in the United States. The fact that the June heat wave did not so severely damage the unusually heavy setting in Santa Barbara, Ventura, and Riverside counties is in a large measure accountable for the increased output. The extent of the damage by the hot wave is easily noted by a glance at the comparative total production by counties in 1916 and 1917 as noted below:

Walnuts by Counties, 1916-1917.

	1916 Production, tons	1917 Production, tons
Los Angeles County -----	4,976	3,958
Orange County -----	5,564	5,716
Ventura County -----	2,695	3,412
Santa Barbara County -----	1,038	1,968
Riverside County -----	74	151
North of Tehachapi -----	275	200
Totals -----	14,622	15,405

The bulk of imported nuts are of the Marbot and Cornes varieties, which correspond in size and quality to the second grade of the Pacific coast production. There are about four million pounds of Naples walnuts imported from Italy annually, and these are the greatest competitors of the California product, as they are of high quality and bring a high price on the market. The total quantity of walnuts imported in 1916 was 36,858,934 pounds, values at \$5,056,945.

The price for the last four years is as follows:

Grade	1914 Cents per pound	1915† Cents per pound	1916 Cents per pound	1917 Cents per pound
No. 1 softshells.....	16½	13½	15½	20
Fancy budded	20	17	19	24
No. 2	12	10½	12½	16
Jumbos	*18½	16½	17½	22½

†Later the price on Fancy was advanced to 17½ and on No. 1 Softshell to 14.

*Later reduced to 17 cents.

Chestnuts.

The Spanish or sweet chestnut is a stately and magnificent tree, native of the countries bordering on the Mediterranean, but also ripening as far north as Scotland. This nut can be grown very successfully in the coast counties, where the conditions are exceptionally favorable for them. Of chestnuts grown in California the Italian predominates, and it may be said that a large area of the state is well suited for the growth of this nut, as there are bearing trees in nearly all parts of the state. The chestnut, aside from its desirability as an orchard tree, can be commended as a tree for hillsides or a shade tree, and should be more widely planted in California.

The chestnut is an important crop in Italy, where the yield was 696,244 tons in 1916, and it is considered an important crop, as it forms one of the chief foodstuffs of the poor. Chestnuts also bulk largely in the food resources of the poor in Spain, Switzerland and Germany. Chestnuts are eaten raw or roasted, or else ground into flour. The quantity imported into this country can not be stated, as in the customs returns they are not given separately, but included under "all other nuts."

The Pistachio.

This nut is a native of Syria, and is generally cultivated in the Mediterranean region. The trees do exceedingly well in the Sacramento and San Joaquin valleys in California. A few of the grafted trees of some of the commercial varieties in the Chico test orchard are bearing a few nuts this season. Seedling trees near Fresno have borne large crops of nuts for some years. Mr. Walter T. Swingle and several others who have studied the subject and are familiar with the conditions believe that in the not distant future pistache culture will be an established commercial industry of considerable importance in this country.

The peculiar beauty of the Chinese pistache and the great age to which it lives have suggested its trial as an avenue tree. A trial avenue a quarter of a mile long, planted at the Chico garden in 1910, already makes an excellent appearance.

The small, green-fleshed nuts are most excellent to eat when roasted and salted, and are extensively used in the coloring and flavoring of ice cream and confections. The entire supply of these nuts at present comes from abroad. This country can, and surely should, grow what it needs.

PRINCIPAL ORCHARD FRUITS BY COUNTIES.

Best Location for the Leading Fruit Crops.

The following summary is both interesting and valuable, as the figures show which districts are the best for raising the different varieties of fruit. In the earlier years many failures were experienced by growers, owing to the soil or climate not being suitable for the trees they had planted.

According to the number of trees in bearing, reported by the Bureau of Census in 1910, the following six counties rank in the order named in the production of various fruits:

Apples.

County	Number of bearing trees	County	Number of bearing trees
Santa Cruz -----	647,136	Santa Clara -----	102,841
Sonoma -----	386,740	Los Angeles -----	101,433
Monterey -----	290,404	Humboldt -----	73,010

Apricots.

Santa Clara -----	783,585	Ventura -----	219,836
Solano -----	310,262	Fresno -----	186,823
Alameda -----	270,461	Yolo -----	117,228

Cherries

Santa Clara -----	173,002	Sonoma -----	43,927
Alameda -----	89,284	Placer -----	31,209
Solano -----	53,923	San Joaquin -----	21,590

Peaches and Nectarines.

Fresno -----	2,277,314	Placer -----	683,824
Kings -----	777,697	Santa Clara -----	437,677
Tulare -----	714,494	Solano -----	341,266

Pears*

Solano -----	182,194	Santa Clara -----	142,550
Sacramento -----	161,094	Sonoma -----	109,965
Placer -----	142,999	Alameda -----	70,382

Prunes and Plums.

Santa Clara -----	3,387,455	Napa -----	299,613
Sonoma -----	569,232	Placer -----	279,766
Solano -----	465,341	Tulare -----	264,337

*Owing to the ravages of the pear blight, the number of bearing trees decreased from 2,512,890 in 1900 to 1,410,905 in 1910.

Total Number of Bearing Orchard Trees.

The following twelve counties have the largest number of orchard fruit trees in bearing, in the order named:

County	Number of bearing trees	County	Number of bearing trees
Santa Clara -----	5,043,766	Kings -----	1,048,506
Fresno -----	2,579,859	Santa Cruz -----	875,642
Sonoma -----	1,364,105	Alameda -----	627,824
Solano -----	1,357,911	Sacramento -----	506,961
Placer -----	1,190,074	Napa -----	497,391
Tulare -----	1,059,830	Butte -----	452,302

TROPICAL FRUITS.**Figs.**

County	Number of bearing trees	County	Number of bearing trees
Fresno -----	120,124	Yolo -----	10,476
Stanislaus -----	37,676	Merced -----	9,837
Tulare -----	15,750	Butte -----	9,518

Olives.

San Diego -----	109,871	Butte -----	73,453
Los Angeles -----	84,934	Fresno -----	72,788
Riverside -----	80,572	Orange -----	67,046

Lemons.

Los Angeles -----	219,149	Riverside -----	115,020
San Diego -----	195,318	Ventura -----	95,018
San Bernardino -----	157,731	Orange -----	46,964

Oranges.

San Bernardino -----	1,951,254	Tulare -----	801,151
Los Angeles -----	1,674,695	Orange -----	478,272
Riverside -----	1,021,957	Butte -----	147,412

Pomeles.

San Bernardino -----	13,134	San Diego -----	5,764
Tulare -----	8,114	Riverside -----	4,477
Los Angeles -----	6,853	Yolo -----	1,825

Total Number of Bearing Trees of Tropical Fruit.

San Bernardino -----	2,153,501	Ventura -----	253,754
Riverside -----	1,224,217	Butte -----	235,442
Los Angeles -----	1,194,402	Santa Barbara -----	99,023
Tulare -----	872,657	Sacramento -----	84,863
San Diego -----	425,260	Kern -----	82,888
Fresno -----	291,754	Placer -----	59,906

GRAPEVINES.

County	Number of bearing vines	County	Number of bearing vines
Fresno	**140,687,207	Santa Barbara	†5,987,127
Sonoma	†17,939,972	Santa Clara	†5,584,480
San Joaquin	†13,371,794	Los Angeles	*†4,923,877
Napa	†8,595,338	Kings	*†4,538,732
Sacramento	†7,627,510	Contra Costa	†2,972,130
Tulare	*†7,227,491	Yolo	*†2,568,019

*Raisin grapes. †Wine grapes. All produce table grapes.

NUTS.

Almonds.

County	Number of bearing trees	County	Number of bearing trees
Contra Costa	209,056	Butte	84,069
Yolo	149,019	Los Angeles	76,949
Solano	96,276	Sacramento	66,372
San Joaquin	97,024	Sutter	61,572

Walnuts.

Los Angeles	281,837	Santa Barbara	96,776
Orange	276,842	Santa Clara	19,070
Ventura	96,622	Sonoma	11,955

Pecans.

San Diego	1,080	Los Angeles	313
Napa	996	Ventura	301
Kern	563	Santa Clara	136

Total Nut Trees in Bearing.

Los Angeles	359,349	Solano	100,239
Orange	278,879	San Joaquin	99,499
Contra Costa	215,249	Santa Barbara	97,091
Yolo	150,822	Sacramento	67,156
Ventura	110,984	Sutter	62,289

SMALL FRUITS.**Strawberries.**

County	Number of acres	County	Number of acres
Los Angeles -----	1,380	Placer -----	433
Santa Cruz -----	489	Monterey -----	263
Santa Clara -----	460	Fresno -----	148
Sacramento -----	450	Sonoma -----	103

Blackberries.

Sonoma -----	930	Fresno -----	91
Los Angeles -----	280	Tulare -----	68
Santa Clara -----	228	San Bernardino -----	68
Santa Cruz -----	116	Placer -----	62

Total Small Fruits.

County	Number of bearing trees	County	Number of bearing trees
Los Angeles -----	1,975	Monterey -----	407
Sonoma -----	1,471	Alameda -----	401
Santa Clara -----	1,011	Fresno -----	310
Santa Cruz -----	744	Orange -----	205
Placer -----	582	Stanislaus -----	161
Sacramento -----	554	Butte -----	148

CALIFORNIA CROPS COMPARED WITH OTHER STATES.

The following summary shows that California holds a leading position in the production of a number of the principal crops of fruits and nuts in the United States, and sugar beets. The three leading states are here given from the census reports on the basis of value. When less than three states are named, others do not produce that particular crop:

California Crops Compared With Other States.

(Compiled from the Census of 1910.)

Crop	Acreage	Production	Value
Almonds—			
California	-----	6,692,513 pounds	\$700,304
Avocados (Alligator pears)—			
Florida	-----	4,920 crates	10,100
Apricots—			
California	-----	4,066,823 bushels	2,768,921
Barley—			
Minnesota	1,573,761	34,927,773 bushels	17,213,817
California	1,195,158	26,441,954 bushels	17,184,568
Wisconsin	816,449	22,156,041 bushels	12,682,136
Beans (dry edible)—			
Michigan	403,669	5,282,511 bushels	9,716,315
California	157,987	3,328,218 bushels	6,295,457
New York	115,698	1,681,506 bushels	3,689,064
Beets (sugar)—			
Colorado	108,082	1,231,712 tons	6,061,152
California	78,957	845,191 tons	4,320,532
Michigan	78,779	707,639 tons	4,014,123
Blackberries and dewberries—			
Missouri	5,975	6,391,209 quarts	456,283
New Jersey	4,332	5,456,789 quarts	313,480
California	2,576	4,896,524 quarts	282,383
Cherries—			
California	-----	501,013 bushels	951,624
Pennsylvania	-----	475,093 bushels	909,975
Ohio	-----	338,644 bushels	657,406
Currants—			
New York	2,557	3,982,389 quarts	264,051
Michigan	609	768,259 quarts	58,288
California	407	852,378 quarts	43,508
Dates—			
California	-----	3,332 pounds	418
Arizona	-----	6,500 pounds	96
Figs—			
California	-----	22,990,353 pounds	260,153
Mississippi	-----	1,949,301 pounds	107,609
Texas	-----	2,411,876 pounds	97,078
Grapefruit (pomeloos)—			
Florida	-----	1,061,537 boxes	1,907,816
California	-----	122,515 boxes	143,180
Grapes—			
California	-----	1,979,686,525 pounds	10,846,812
New York	-----	253,006,361 pounds	3,961,677
Guavas—			
Florida	-----	258,709 pounds	7,601
California	-----	95,053 pounds	4,018
Hemp—			
Kentucky	6,855	6,420,232 pounds	348,386
California	300	600,000 pounds	39,000
Indiana	335	395,467 pounds	21,755
Hops—			
Oregon	21,770	16,582,562 pounds	2,838,860
New York	12,023	8,677,138 pounds	2,597,981
California	8,391	11,994,953 pounds	1,731,110
Lemons—			
California	-----	2,756,221 boxes	2,976,571

California Crops Compared With Other States—Continued.

Crop	Acreage	Production	Value
Limes—			
Florida		11,302 boxes	\$12,457
Loquats—			
California		4,516 boxes	5,830
Mandarins—			
Louisiana		3,340 boxes	5,945
California		555 boxes	607
Mangoes—			
Florida		5,278 boxes	5,739
Mustard seed—			
California	1,964	3,168,270 pounds	100,731
Nursery products—			
New York	6,680		2,750,957
California	4,803		2,212,788
Texas	3,847		1,253,110
Nuts (all)—			
California		28,378,115 pounds	2,959,845
Texas		5,945,932 pounds	562,542
Pennsylvania		3,795,804 pounds	90,447
Olives—			
California		16,132,412 pounds	401,277
Oranges—			
California		14,436,180 boxes	12,951,505
Florida		4,852,967 boxes	4,304,967
Peaches and nectarines—			
California		9,267,118 bushels	4,573,775
Georgia		2,555,499 bushels	2,182,613
Arkansas		1,901,647 bushels	1,502,996
Pears—			
California		1,928,097 bushels	1,660,963
New York		1,343,089 bushels	1,418,218
Michigan		666,023 bushels	535,771
Persimmons (Japanese)—			
California		2,686 bushels	3,344
Texas		1,175 bushels	2,136
Florida		1,615 bushels	2,066
Pineapples—			
Florida		778,644 crates	734,069
Plums and prunes—			
California		9,317,979 bushels	5,473,539
Oregon		1,747,587 bushels	838,783
Washington		1,032,077 bushels	600,503
Pomegranates—			
California		30,075 pounds	968
Georgia		27,365 pounds	920
Nevada		45,550 pounds	915
Seed (flower and vegetable)—			
California			594,724
Illinois			194,626
New York			72,991
Strawberries—			
New York	6,382	15,945,863 quarts	1,187,410
California	4,585	15,694,326 quarts	1,149,475
Missouri	9,048	15,171,034 quarts	1,122,784
Sunflower seed—			
Illinois	3,969	49,004 bushels	44,539
California	257	6,855 bushels	6,264
Indiana	430	6,330 bushels	5,894
Tangerines—			
Florida		34,871 boxes	64,082
California		3,581 boxes	4,188
Walnuts (Persian or English)			
California		21,432,266 pounds	2,247,193

In quinces California takes the fourth place, New York, Pennsylvania, and Ohio leading. In raspberries and loganberries, New York, Michigan, and Ohio take the first three places, with California fourth and Washington fifth. In other crops, the first place is held by the following states: chicory, Michigan; cranberries, Massachusetts; flowers and plants, New York; gooseberries, Illinois; maple syrup, Ohio; maple sugar, Vermont; mint, Michigan; peanuts, North Carolina; pecans, Texas.

EFFECT OF THE WAR ON THE FRUIT INDUSTRY.

The figures regarding the imports and exports of fruits during the last four years shows some remarkable results. Bananas and pineapples, not being raised in California, are only included so as to show the total value of fruits imported. Dates are now being produced to limited extent, but the prospects of the industry are encouraging. The importation of currants, which in 1894 amounted to upwards of 52,000,000 pounds, and in 1913 to 47,000,000 pounds, were only 32,000,000 pounds in 1914, and fell to 793,000 pounds in 1917, which had the effect of greatly increasing the demand for California seedless raisins. Figs have fallen off from 20,000,000 pounds in 1914, to 3,000,000 pounds in 1917, in the previous year there was a temporary increase owing to the importation of an unusually large shipment of 8,000,000 pounds in December of that year, mostly from Portugal, but of an inferior grade, which were used mostly for confectionary purposes. The imports of Almeria grapes has also decreased materially, or from 1,330,000 cubic feet in 1914 to 576,000 cubic feet in 1917. The value of lemons has decreased from \$5,227,000 in 1914, to \$1,877,000 in 1917, but the value of oranges shows an increase of from \$52,000 to \$141,000. Olives have not fluctuated in quantity or price so much as other fruits, 5,743,000 gallons being imported in 1914, and 4,367,000 in 1917. Raisins have been steadily falling off for the last ten years, in 1914 3,873,000 pounds were imported, but only 989,000 pounds in 1917, by far the lowest quantity ever recorded. It will be observed that the total value of imported fruits is still very high, and these figures go to prove that there is ample room for a much larger development of the fruit industry in California. The following summary is instructive, as showing that in the four years, 1914-1917, the value of imported fruits decreased \$9,062,739, while the exports of domestic fruits increased \$4,747,052.

Foreign Trade in Fruits.

Year	Value imports	Value exports
1914	\$32,235,011	\$28,868,839
1915	23,046,778	36,926,567
1916	25,533,582	35,999,814
1917	23,172,272	33,615,891

EXPORTS OF DOMESTIC FRUITS.

In exports apples and oranges are the leading fresh fruits, prunes and raisins in dried fruits, while canned fruits are also an important item. The quantity of dried apples exported in 1914 amounted to 31,027,000 pounds, but in 1917 the quantity fell to 7,852,000 pounds. Of green or ripe apples 1,541,000 barrels were exported in 1914, and 958,000 barrels in 1917. Dried apricots also declined from 16,541,000 pounds in 1914, to 6,728,000 pounds in 1917. Figs are not yet being exported in any quantity, but the industry is growing rapidly, and a large acreage has been planted during the last year or two, especially in Fresno County. In citrus fruits the exports are remarkably steady and their value forms an important item.

In 1914, 94,300 boxes of lemons were exported, compared with 154,300 boxes in 1917, while oranges amounted to 1,839,000 boxes in 1914, and 1,860,000 boxes in 1917. Dried peaches, which is one of our most important crops, shows a considerable falling off in exports since 1915, when it amounted to 18,660,000 pounds; the quantity in 1914 was 7,387,000 pounds, but in 1917 only 6,523,000 pounds were exported. The exports of green or ripe pears is comparatively small, but the last two years has increased. Prunes have always been one of our largest exports in dried fruits, the quantity in 1914 being 35,228,000 pounds, and in 1917, 48,097,000 pounds, but in some years have considerably exceeded those figures. The export of raisins has rapidly increased in recent years, and in 1917, equaled that of prunes. The exports in 1914 were 21,688,000 pounds, in 1915 58,585,000 pounds, and in 1917 48,746,000 pounds.

The only other fruit products that call for special notice is that of canned fruits, the value of which in 1914 was \$5,553,000, compared with \$6,103,000 in 1917.

IMPORTS.*

(For the calendar year ending December 31.)

Fruit	Quantity 1914	Value 1914	Quantity 1915	Value 1915
Bananas, bunches	46,640,243	\$15,863,972	38,230,310	\$12,687,696
Currants, pounds	32,130,575	1,244,752	25,240,218	1,246,491
Dates, pounds	25,786,468	431,401	26,453,118	431,591
Figs, pounds	20,506,563	968,448	8,327,870	390,327
Grapes, cubic feet	1,330,087	1,545,526	625,364	703,560
Lemons		5,227,845		2,366,907
Olives, gallons	5,743,130	2,528,390	3,713,315	1,551,152
Oranges		52,860		78,586
Pineapples		1,355,123		1,175,883
Raisins, pounds	3,873,784	267,329	1,604,803	167,516
Fruits preserved		1,096,259		891,087
All others		1,653,106		1,355,982
Totals		\$32,235,011		\$23,046,778

*Bananas are imported principally from Central American States, British Honduras, and the British West Indies, and also from Cuba. Currants are imported almost exclusively from Greece, and dates from Turkey in Asia. Figs come mostly from Smyrna in Turkey in Asia, and the balance from Portugal and Greece. Grapes (Almeria) come from Spain, and lemons almost entirely from Italy. Most imported olives come from Spain, but a considerable quantity also comes from Greece. Most of the olive oil imported comes from Italy, France and Spain supplying smaller quantities. The bulk of the oranges imported come from Jamaica, Mexico and Italy supplying smaller quantities.

IMPORTS—Continued.

Fruit	Quantity 1916	Value 1916	Quantity 1917	Value 1917
Bananas, bunches	35,385,296	\$12,189,682	35,279,686	\$13,961,158
Currants, pounds	16,055,623	1,382,157	793,761	112,530
Dates, pounds	16,918,824	449,729	20,096,550	580,627
Figs, pounds	15,754,672	673,134	3,239,405	163,647
Grapes, cubic feet	1,382,082	1,634,495	576,132	680,027
Lemons		2,451,538		1,877,093
Olives, gallons	6,672,683	2,742,684	4,367,767	1,820,009
Oranges		63,347		141,555
Pineapples		916,371		943,115
Raisins, pounds	1,757,560	229,351	969,410	159,245
Fruits preserved		890,391		723,096
All others		1,910,703		2,010,170
Totals		\$25,533,582		\$23,172,272

†100 cubic feet are equal to one ton.

Most of the imported pineapples come from Cuba. Raisins are imported almost exclusively from Spain, and Sultanas from Smyrna, but the quantities are small and decreasing every year, owing to the quantity now produced in this state. Preserved fruits come principally from France and Italy, and most of the nuts imported are from France, Spain and Italy.

EXPORTS OF DOMESTIC FRUITS.

(For the calendar year ending December 31.)

Fruit	Quantity 1914	Value 1914	Quantity 1915	Value 1915
Apples, dried, pounds	31,027,551	\$2,441,094	33,908,508	\$2,671,601
Apples, ripe, barrels	1,541,361	5,695,621	2,176,992	7,686,284
Apricots, dried, pounds	16,541,222	1,598,405	25,748,426	2,323,075
Berries		629,812		449,921
Lemons, boxes	94,317	351,897	180,397	417,539
Oranges, boxes	1,839,862	4,225,991	1,588,718	3,586,831
Peaches, dried, pounds	7,387,161	458,983	18,660,272	1,120,534
Pears, ripe		926,958		716,837
Prunes, pounds	35,228,737	2,582,560	50,976,789	3,593,059
Raisins, pounds	21,688,429	1,485,417	58,585,261	4,240,160
All others, green, ripe or dried		2,694,110		2,842,746
Canned fruit		5,553,918		6,605,350
All other fruit		224,023		672,630
Totals		\$28,868,839		\$36,926,567

Fruit	Quantity 1916	Value 1916	Quantity 1917	Value 1917
Apples, dried, pounds	13,186,467	\$1,002,007	7,852,773	\$691,111
Apples, ripe, barrels	1,670,543	7,205,766	958,104	4,496,007
Apricots, dried, pounds	13,564,447	1,512,810	6,728,910	956,884
Berries		704,321		849,921
Lemons, boxes	163,667	563,539	154,341	533,000
Oranges, boxes	1,782,081	4,229,872	1,860,142	4,649,893
Peaches, dried, pounds	9,678,083	642,980	6,523,700	614,782
Pears, ripe		1,239,567		1,099,028
Prunes, pounds	54,339,218	4,036,836	48,097,017	4,348,810
Raisins, pounds	57,499,971	4,491,371	48,746,153	4,401,824
All others, green, ripe or dried		3,605,225		4,065,290
Canned fruit		5,856,366		6,103,040
All other fruit		909,154		756,301
Totals		\$35,999,814		\$33,615,891

Of the exports of domestic fruits from January to December, 1917, the three countries which took the largest quantity were as follows:

Apples, ripe (barrels)—		Prunes (pounds)—	
Canada	457,941	France	17,728,597
United Kingdom	305,787	Canada	13,010,407
Argentina	31,721	Denmark	1,427,506
Apricots, dried (pounds)—		Raisins (pounds)—	
France	2,532,820	Canada	29,285,090
Canada	876,599	United Kingdom	9,757,355
United Kingdom	849,705	New Zealand	4,850,266
Oranges (boxes)—		Canned fruit (value)—	
Canada	1,770,508	United Kingdom	\$3,458,523
United Kingdom	12,052	Canada	574,349
All other countries	77,582	Cuba	460,760

CALIFORNIA FRUIT AND NUT CROPS.

1896-1917.

Apples, Apricots, Figs, Oranges, Lemons, Olives, Pears, Nectarines and Peaches, Prunes, Plums, Raisins, Dried Grapes, and Greek Currants, Canned Fruits, Nuts (imports and exports for the fiscal year ending June 30.)

APPLES (DRIED), 1896-1916.

(None imported.)

Year	California crop, pounds	Exported	
		Pounds	Value
1896	2,350,000	26,691,963	\$1,340,507
1897	5,250,000	30,775,401	1,340,159
1898	3,520,000	31,031,254	1,897,728
1899	5,900,000	19,305,739	1,245,733
1900	6,360,000	34,964,010	2,247,851
1901	6,450,000	28,309,023	1,510,581
1902	9,750,000	15,664,468	1,110,593
1903	3,600,000	39,646,297	2,378,635
1904	3,000,000	48,301,665	2,791,421
1905	6,500,000	39,272,890	2,208,414
1906	5,500,000	27,852,831	2,044,820
1907	3,600,000	45,697,948	3,166,946
1908	6,800,000	24,237,873	1,946,810
1909	5,800,000	33,474,634	2,339,936
1910	6,200,000	25,076,618	2,056,692
1911	9,000,000	21,804,086	1,944,209
1912	6,500,000	53,664,639	4,515,971
1913	3,600,000	41,574,562	2,898,211
1914	8,000,000	33,563,160	2,628,445
1915	8,000,000	42,589,169	3,270,658
1916	9,000,000	16,219,174	1,304,224
1917	8,000,000	10,530,474	803,617

Dried Apples Exported in 1915 and 1916.

Country	1915		1916	
	Pounds	Value	Pounds	Value
Denmark	17,820,846	\$1,363,829	2,316,126	\$210,046
Sweden	10,748,504	845,041	6,859,064	584,186
Netherlands	5,200,178	430,181	1,878,251	117,590
United Kingdom	5,098,725	338,981	1,163,641	82,747

APRICOTS (DRIED), 1896-1917.

(None Imported.)

Year	California crop, pounds	Exported	
		Pounds	Value
1896	6,740,000		
1897	30,125,000		
1898	8,240,000		
1899	11,600,000		
1900	28,080,000		
1901	15,750,000		
1902	37,525,000	1,928,367	\$178,143
1903	21,000,000	9,190,081	713,887
1904	17,000,000	7,205,686	608,511
1905	38,500,000	6,854,154	606,777
1906	6,500,000	13,760,281	1,325,422
1907	3,000,000	2,760,432	336,812
1908	36,000,000	1,224,602	229,467
1909	32,000,000	16,597,871	1,512,417
1910	33,500,000	12,028,834	1,218,423
1911	14,000,000	19,329,358	2,085,437
1912	35,500,000	13,413,430	1,885,855
1913	18,000,000	35,016,730	3,513,473
1914	40,000,000	17,401,692	1,937,771
1915	32,000,000	23,764,342	2,241,061
1916	22,000,000	23,939,790	2,168,808
1917	32,000,000	9,843,719	1,298,176

Dried Apricots Exported in 1915 and 1916.

Country	1915		1916	
	Quantity	Value	Quantity	Value
United Kingdom	9,017,358	\$452,456	5,783,717	\$518,596
Denmark	4,314,206	382,427	3,655,775	342,284
Sweden	2,048,027	184,188	4,336,878	371,035
France	1,911,296	192,781	2,570,491	234,971
Netherlands	1,285,632	133,359	2,526,953	254,673

FIGS, 1896-1917.

(Duty, 2 cents per pound.)

Year	California crop, pounds	Imported	
		Pounds	Value
1896	2,160,000	11,900,710	\$639,512
1897	3,250,000	8,940,762	535,380
1898	4,780,000	9,628,426	509,002
1899	5,800,000	7,284,058	356,762
1900	4,000,000	8,812,487	513,895
1901	6,500,000	9,933,871	458,513
1902	7,250,000	11,087,131	487,733
1903	6,000,000	16,482,142	775,917
1904	5,700,000	13,178,061	660,360
1905	7,250,000	13,364,107	617,027
1906	7,750,000	17,562,358	722,967
1907	6,000,000	24,346,173	1,136,924
1908	6,000,000	18,836,574	867,523
1909	7,500,000	15,235,513	691,981
1910	6,250,000	17,362,197	775,319
1911	8,000,000	23,459,728	1,059,340
1912	10,000,000	18,765,408	934,763
1913	11,100,000	16,837,819	944,317
1914	10,000,000	19,284,868	941,207
1915	15,000,000	20,779,730	1,024,495
1916	16,400,000	7,153,250	315,831
1917	22,000,000	16,479,733	704,164

Nearly all the figs previous to the war were imported from Smyrna, in Turkey in Asia, about two million pounds from Greece and smaller quantities from Italy and Spain. In 1916 a considerable quantity were imported from Portugal.

Exports of domestic figs are not shown separately in the customs returns, but are included in "All other green, ripe, or dried fruits."

OLIVES, 1907-1917.
(Duty, 15 cents per gallon.)

Year	Imported	
	Gallons	Value
1907.....	2,298,480	\$1,277,973
1908.....	3,121,788	1,358,897
1909.....	2,969,329	1,349,023
1910.....	4,555,975	1,659,801
1911.....	3,044,947	1,567,546
1912.....	5,076,857	2,303,277
1913.....	3,946,076	1,896,982
1914.....	5,316,364	2,292,837
1915.....	3,622,275	1,607,903
1916.....	5,988,446	2,433,304
1917.....	5,641,759	2,338,615

NOTE.—Olives in California, although cultivated on a considerable scale, have generally been considered one of the minor crops, and no regular records of the crop have been kept until the last few years. A large acreage has been planted in the last two or three years. Previous to 1907 the imports of olive oil were not given separately in the customs returns.

Most of the olives imported into this country come from Italy; France ranking second.

Exports of domestic olives and olive oil are not shown separately in the customs returns, but included in "All other fruits, or oils."

OLIVE OIL, 1896-1917.

Imports.

(Duty, in cask, 20 cents per gallon; in bottles, 30 cents per gallon. Olive oil unfit for food, free.)

Year	For manufacturing or mechanical purposes		For table use	
	Gallons	Value	Gallons	Value
1896.....	*	*	942,598	†\$1,107,049
1897.....	*	*	928,567	†1,134,077
1898.....	*	*	736,877	†923,804
1899.....	*	*	930,042	†1,090,250
1900.....	*	*	967,702	†1,170,871
1901.....	*	*	983,059	†1,266,293
1902.....	*	*	1,339,097	†1,579,409
1903.....	*	*	1,494,132	†1,736,648
1904.....	*	*	1,713,590	†1,875,825
1905.....	*	*	1,923,174	†2,108,893
1906.....	2,538,366	\$1,105,876	2,447,131	2,566,994
1907.....	1,471,766	682,656	3,449,517	3,523,725
1908.....	1,565,253	703,829	3,799,112	3,876,901
1909.....	369,979	183,983	4,129,454	5,069,655
1910.....	842,926	477,679	3,702,210	4,869,114
1911.....	578,477	378,819	4,405,827	6,014,191
1912.....	636,013	389,539	4,836,515	6,170,882
1913.....	619,356	407,074	5,221,001	6,739,172
1914.....	763,924	477,210	6,217,560	7,916,980
1915.....	653,064	450,001	6,710,967	8,225,485
1916.....	884,944	684,896	7,224,431	9,746,672
1917.....	651,018	615,350	7,533,149	10,502,671

*Included in "Olive oil for table use."

†1886-1905 includes olive oil for manufacturing purposes.

CALIFORNIA ORANGE AND LEMON CROP, 1896-1916.

(Carloads.)

Season	Southern California		Total carloads	Northern and Central California*		Grand total carloads
	Lemons	Oranges		Oranges	Lemons	
1895-96	565	7,010	7,575			
1896-97	1,378	5,972	7,350			
1897-98	1,166	13,987	15,153			
1898-99	903	9,448	10,351			
1899-1900	1,447	16,362	17,809			
1900-01	2,924	21,173	24,097			
1901-02	2,816	17,571	20,387			
1902-03	2,649	19,776	22,425	†1,304		23,729
1903-04	2,782	25,117	27,899	†1,567		29,466
1904-05	4,274	25,608	29,882	†1,734		31,616
1905-06	3,789	22,175	25,964	†1,564		27,528
1906-07	3,507	23,986	27,493	†2,333		29,826
1907-08	4,959	24,538	29,497	†3,150		32,647
1908-09	6,196	31,875	38,071	†2,501		40,572
1909-10	4,782	25,331	30,113	2,921	109	33,143
1910-11	6,764	36,821	43,585	2,687	127	46,399
1911-12	5,961	30,327	36,288	4,220	172	40,680
1912-13	2,192	13,574	15,766	2,453	112	18,331
1913-14	2,954	39,024	41,978	6,282	78	48,338
1914-15	6,843	33,317	40,160	6,427	225	46,812
1915-16	7,016	31,871	38,887	6,026	170	45,083
1916-17	7,748	40,702	48,450	5,889	167	54,506

*Lemons and oranges not reported prior to 1902-03 and not shown separately until 1909. The number of boxes per car of oranges and lemons has varied considerably, as the size of cars in recent years has increased. In 1904-05, and prior to that date, oranges averaged about 374 boxes and lemons 313 boxes to the car. At the present time the numbers are about 396 for oranges and 336 for lemons.

†Including lemons.

Imports and Exports of Oranges, 1896-1917.

(Duty, in packages exceeding 5 cubic feet, or in bulk, $\frac{1}{4}$ of 1 cent per pound.)

Year	Exports		Imports	
	Boxes	Value	Pounds	Value
1896				\$2,694,131
1897				2,324,907
1898		\$339,396		886,722
1899		282,313		1,097,596
1900		271,468	68,618,938	1,087,041
1901		436,560	50,332,914	716,457
1902		420,835	52,742,476	784,640
1903		465,397	56,872,070	818,780
1904		739,593	35,896,260	525,468
1905		929,151	28,880,575	374,088
1906		1,110,993	31,134,341	456,726
1907		1,255,104	21,267,346	354,495
1908	654,251	1,577,661	18,397,429	275,060
1909	866,753	2,131,724	8,435,873	137,390
1910	932,118	2,213,905	4,676,118	82,457
1911	1,179,273	2,983,322	7,672,186	116,658
1912	1,197,363	3,022,859	7,628,662	108,880
1913	1,063,233	2,976,520	12,252,960	233,760
1914	1,558,921	3,824,889	*	93,472
1915	1,759,405	3,851,013	*	50,022
1916	1,575,042	3,690,080	*	89,464
1917	1,850,692	4,397,120	*	160,710

NOTE.—In years for which no figures are given, oranges were included in "Other fresh or dried fruits." Oranges are mostly imported from Mexico, West Indies, and Italy. The bulk of California oranges exported go to Canada.

*Quantity of oranges and lemons imported not given since 1913.

Imports and Exports of Lemons, 1896-1917.

(Duty, in packages exceeding 5 cubic feet, or in bulk, $\frac{1}{2}$ cent per pound.)

Year	Imported		Exported	
	Pounds	Value	Boxes	Value
1906	138,717,252	\$2,933,990		
1907	157,859,906	4,253,296		
1908	178,490,003	4,888,530		
1909	135,183,550	2,623,399		
1910	160,214,785	3,136,933		
1911	134,968,924	2,965,561		
1912	145,639,396	3,368,863		
1913	151,416,412	4,900,266	81,949	\$399,409
1914	*	5,981,635	70,075	308,707
1915	*	3,730,075	122,914	372,781
1916	*	2,062,030	175,070	493,919
1917	*	2,163,583	174,938	626,270

NOTE.—Of the imported lemons in 1912, 145,275,122 pounds came from Italy, and the balance of 364,274 from other countries. The exports of domestic lemons were not shown separately in the customs returns until 1913, but were included under "All other" fruit.

*The quantity is not stated after 1913.

PEACHES AND NECTARINES (DRIED) EXPORTED, 1896-1917.

(None imported.)

Year	California crop, pounds			Exported	
	Peaches	Nectarines	Total	Pounds	Value
1896	16,460,000	625,000	17,085,000		
1897	27,150,000	285,000	27,435,000		
1898	10,960,000	190,000	11,150,000		
1899	34,800,000	340,000	35,640,000		
1900	34,340,000	870,000	35,210,000		
1901	29,510,000	650,000	30,160,000		
1902	50,420,000	910,000	51,330,000		
1903	36,000,000	635,000	36,635,000		
1904	23,000,000	420,000	23,420,000		
1905	35,000,000	370,000	35,370,000		
1906	22,500,000	340,000	22,840,000	1,181,649	\$110,407
1907	24,000,000	275,000	24,275,000	1,757,650	186,043
1908	48,000,000	525,000	48,525,000	1,148,598	144,318
1909	40,000,000	750,000	40,750,000	2,403,430	151,334
1910	50,000,000	500,000	50,500,000	2,617,069	151,520
1911	22,000,000	800,000	22,800,000	7,125,014	499,530
1912	53,000,000	500,000	53,500,000	4,425,803	422,766
1913	40,000,000	400,000	40,400,000	6,529,633	444,879
1914	69,400,000	600,000	70,000,000	6,712,296	449,549
1915	57,000,000	400,000	57,400,000	14,464,655	834,813
1916	58,000,000			13,739,342	893,587
1917	78,000,000			8,187,588	603,620

NOTE.—Included in "All other green, ripe, or dried fruits" in the years where no figures are given.

PEARS EXPORTED, 1896-1917.

(None Imported.)

Year	California crop, dried pears, pounds	Exported green or ripe, value	Year	California crop, dried pears, pounds	Exported green or ripe, value
1896	3,650,000		1907	1,000,000	\$675,944
1897	6,350,000		1908	5,000,000	288,918
1898	6,620,000		1909	2,500,000	546,198
1899	5,760,000		1910	2,000,000	302,958
1900	14,550,000		1911	4,000,000	578,067
1901	6,510,000		1912	3,500,000	784,627
1902	5,250,000		1913	2,000,000	796,913
1903	4,650,000		1914	3,000,000	1,402,924
1904	3,500,000		1915	2,000,000	992,497
1905	3,500,000		1916	1,600,000	691,792
1906	7,000,000	\$631,972	1917	2,200,000	1,356,259

NOTE.—Included under "All other green, ripe or dried fruit" in the years where no figures are given. Dried pears are not shown separately. Pears are mostly exported to the United Kingdom and Canada.

DRIED PRUNES, 1896-1917.

(Duty, 1 cent per pound.)

Year	California crop, pounds	Exports		Year	California crop, pounds	Exports	
		Pounds	Value			Pounds	Value
1896	55,200,000			1907	105,000,000	44,400,104	\$2,400,960
1897	97,780,000			1908	57,000,000	28,148,450	1,642,114
1898	90,420,000	15,940,791	\$1,021,888	1909	150,000,000	22,602,288	1,078,210
1899	112,900,000	5,615,565	380,847	1910	75,000,000	89,014,880	4,016,554
1900	174,000,000	25,922,371	1,646,332	1911	140,000,000	51,030,711	3,271,971
1901	81,600,000	10,021,564	589,113	1912	200,000,000	74,328,074	4,969,053
1902	195,000,000	23,358,849	1,404,422	1913	90,000,000	117,950,875	6,655,870
1903	165,000,000	66,385,215	3,512,507	1914	120,000,000	69,813,711	4,662,546
1904	135,000,000	73,146,214	3,410,497	1915	174,000,000	43,478,892	3,274,197
1905	70,000,000	54,993,849	2,455,056	1916	130,000,000	57,422,827	3,975,396
1906	180,000,000	24,869,744	1,410,636	1917	224,000,000	59,645,141	4,934,329

The largest quantity of prunes exported go to Germany and Canada; the imports of prunes are included with plums

PLUMS, 1896-1917.

(Duty, 1 cent per pound.)

Year	California plum crop, pounds	Imports of plums and prunes		Year	California plum crop, pounds	Imports of plums and prunes	
		Pounds	Value			Pounds	Value
1896	2,100,000	483,658	\$68,862	1907	1,500,000	323,377	\$45,386
1897	3,250,000	710,028	73,303	1908	1,000,000	335,089	49,322
1898	2,460,000	303,992	39,660	1909	1,200,000	296,123	41,696
1899	3,360,000	600,360	63,574	1910	750,000	*	*
1900	3,900,000	443,457	47,700	1911	1,200,000	*	*
1901	3,450,000	745,974	62,880	1912	750,000	*	*
1902	2,560,000	522,478	44,077	1913	1,200,000	*	*
1903	2,870,000	633,819	63,218	1914	1,500,000	*	*
1904	2,300,000	494,105	46,976	1915	1,900,000	*	*
1905	1,860,000	671,604	63,617	1916	1,200,000	*	*
1906	2,000,000	497,494	53,348	1917	1,800,000	*	*

*Included in "All other fruits" after 1909, the quantity being so small.

CALIFORNIA RAISIN CROP, AND EXPORTS AND IMPORTS, 1896-1917.

(Duty on raisins and dried grapes, 2 cents per pound.)

Year	California crop. pounds	Exports		Imports	
		Pounds	Value	Pounds	Value
1896	68,000,000			10,826,094	\$460,200
1897	93,000,000			12,650,598	567,039
1898	80,000,000	3,109,639	\$167,062	6,593,833	381,889
1899	71,000,000	4,659,807	242,620	4,933,201	282,400
1900	90,000,000	2,415,456	139,689	10,309,498	531,124
1901	74,000,000	3,512,164	218,715	3,860,836	297,631
1902	106,000,000	2,323,274	149,216	6,683,545	399,973
1903	120,000,000	4,280,028	284,530	6,715,675	476,844
1904	75,000,000	4,020,418	281,402	6,867,617	355,542
1905	87,000,000	7,054,824	372,087	4,041,639	273,031
1906	95,000,000	4,528,502	305,768	12,414,855	524,590
1907	140,000,000	9,128,827	599,395	3,967,151	364,403
1908	130,000,000	5,684,541	427,583	9,132,353	554,633
1909	140,000,000	7,880,161	455,657	5,794,320	327,644
1910	115,000,000	8,526,114	417,408	5,042,633	296,047
1911	120,000,000	18,659,992	1,069,300	2,479,220	237,422
1912	185,000,000	19,949,046	1,351,986	3,255,861	295,466
1913	130,000,000	28,120,507	1,512,642	2,579,705	241,630
1914	182,000,000	14,766,416	997,575	4,554,549	309,511
1915	256,000,000	24,845,414	1,718,547	2,808,806	238,958
1916*	264,000,000	75,014,758	5,407,219	1,024,296	143,750
1917*	326,000,000	51,992,514	4,409,639	1,850,219	234,560

NOTE.—Imported raisins come almost entirely from Spain, and Sultanas, which are included in the above figures from Smyrna in Turkey in Asia. These latter have also greatly decreased in recent years from upward of 7,000,000 pounds in 1906 to about 500,000 pounds, but in 1913 the quantity increased to 1,287,296 pounds, and 2,730,338 pounds in 1914. Canada is our best customer for raisins, taking 18,000,000 pounds in 1913 and 10,000,000 in 1914.

*About 20 per cent should be added to these totals for raisins packed outside the Association.

DRIED GRAPES.

The quantity of "dried grapes" (which are wine grapes) is now small, and is discouraged, as they make inferior raisins.

IMPORTS OF GREEK CURRANTS, 1896-1917.

(Duty, 1½ cents per pound.)

Year	Pounds	Value	Year	Pounds	Value
1896*	33,040,846	\$551,072	1907	38,392,779	\$1,746,941
1897	29,265,761	596,084	1908	38,652,656	1,592,018
1898	25,186,210	837,987	1909	32,482,111	1,185,106
1899	30,849,253	798,357	1910	33,326,030	1,190,020
1900	36,251,779	916,908	1911	33,439,565	1,486,263
1901	16,049,198	916,994	1912	33,151,396	1,561,350
1902	36,238,976	1,238,756	1913	30,843,735	1,306,410
1903	33,878,209	743,644	1914	32,033,177	1,233,228
1904	38,347,649	997,430	1915	30,350,527	1,209,273
1905	31,742,919	764,289	1916	25,373,029	1,382,839
1906	37,078,311	1,119,146	1917	10,476,534	1,056,525

*From 1891 to 1894, currants were duty free, and in 1895, 1896 and 1897, currants not from Zante were admitted free. Currants practically all come from Greece.

CALIFORNIA CANNED FRUIT, AND EXPORTS, 1896-1917.

(None imported.)

Year	California pack, cases	Exports, Value	Year	California pack, cases	Exports, Value
1896	1,602,446	\$1,376,281	1907	2,983,000	\$1,581,047
1897	1,942,982	1,686,723	1908	4,734,000	1,549,826
1898	2,085,166	1,624,741	1909	3,047,000	2,899,374
1899	3,003,100	2,330,715	1910	3,600,000	2,656,019
1900	2,775,800	3,127,278	1911	4,095,035	2,686,445
1901	2,677,000	3,006,109	1912	4,883,900	4,012,463
1902	2,252,000	1,195,635	1913	4,194,525	5,599,373
1903	2,783,500	1,739,571	1914	5,968,875	4,863,946
1904	2,840,600	2,637,002	1915	5,731,166	6,064,765
1905	3,252,500	2,541,025	1916	7,021,975	7,050,061
1906	3,125,000	2,348,064	1917	9,995,145	6,137,695

IMPORTS OF MISCELLANEOUS FRUITS, 1896-1917.

Duty on Imported Preserved Fruits.

Preserved in sugar of their own juices, 1 cent a pound; if contained over 10 per cent of alcohol, 20 per cent ad valorem and in addition \$2.50 per proof gallon of alcohol in excess of 10 per cent. Jellies, 20 per cent ad valorem; pineapples preserved in their own juice, 20 per cent ad valorem.

Year	Prepared or preserved fruits, value	All other fresh or dried fruits, value	Total fruits, value	Year	Prepared or preserved fruits, value	All other fresh or dried fruits, value	Total fruits, value
1896	\$598,928	\$2,128,056	\$16,957,307	1907	\$1,272,445	\$1,363,167	\$26,124,277
1897	605,053	1,810,807	14,926,771	1908	1,550,246	2,250,815	27,710,799
1898	922,357	1,294,855	12,329,012	1909	1,062,775	1,912,949	22,446,430
1899	1,020,644	1,579,652	15,586,664	1910	956,368	920,362	24,177,160
1900	1,243,479	1,989,546	16,284,758	1911	893,633	971,572	27,017,632
1901	1,366,801	2,059,130	16,317,848	1912	936,008	1,693,516	29,549,281
1902	1,454,788	2,053,388	17,436,184	1913	795,399	1,115,330	28,657,084
1903	1,521,443	2,353,864	18,860,238	1914	1,111,193	1,710,009	2,821,202
1904	1,796,209	2,749,670	18,964,688	1915	1,022,968	1,431,242	2,454,210
1905	1,599,488	2,924,187	19,779,113	1916	954,510	1,582,600	2,537,110
1906	2,437,766	2,484,345	21,542,322	1917	781,578	1,936,561	2,718,139

EXPORTS OF MISCELLANEOUS DOMESTIC FRUITS (RIPE OR DRIED) 1896-1917.

Year	Preserved other than canned (value)	Other fresh or dried fruits (value)	Total fruits (value)	Year	Preserved other than canned (value)	Other fresh or dried fruits (value)	Total fruits (value)
1896	\$70,353	\$1,868,353	\$5,585,783	1907	\$104,663	\$2,246,384	\$17,206,267
1897	43,276	2,172,199	7,613,500	1908	137,929	2,360,360	13,965,840
1898	82,504	2,033,845	8,851,787	1909	77,746	2,104,624	16,079,227
1899	66,899	1,997,649	7,757,235	1910	176,474	2,119,210	18,504,591
1900	63,448	2,545,451	11,486,172	1911	205,643	2,792,281	23,893,663
1901	71,597	2,716,269	10,607,908	1912	136,870	3,812,304	80,354,700
1902	94,323	2,153,050	8,415,103	1913	181,749	2,893,395	36,345,517
1903	66,757	4,215,084	17,558,119	1914	224,841	2,922,740	3,147,581
1904	115,490	4,317,910	20,348,299	1915	269,180	2,717,449	2,986,629
1905	71,868	2,253,638	15,297,391	1916	978,568	3,261,109	4,239,677
1906	89,872	1,727,943	14,857,272	1917	673,560		

ALMONDS, 1896-1917.

(Duty, 3 cents per pound; shelled, 4 cents per pound.)

Year	California crop, pounds	Imported		Year	California crop, pounds	Imported	
		Pounds	Value			Pounds	Value
1896	3,210,000	7,789,681	\$763,594	1907	1,850,000	14,233,613	\$2,331,816
1897	4,750,000	9,644,338	880,263	1908	6,000,000	17,144,968	2,410,648
1898	900,000	5,746,362	659,659	1909	3,500,000	11,029,421	1,852,523
1899	4,640,000	9,957,427	1,222,587	1910	6,800,000	18,556,356	3,153,645
1900	5,480,000	6,317,633	949,083	1911	3,400,000	15,552,712	2,866,573
1901	3,000,000	5,140,232	946,138	1912	6,000,000	17,231,458	3,253,495
1902	6,540,000	9,868,982	1,240,846	1913	2,200,000	15,670,558	3,344,658
1903	6,400,000	8,142,164	1,337,717	1914*	5,000,000	19,038,405	4,679,289
1904	1,600,000	9,838,852	1,246,474	1915*	7,000,000	17,111,264	3,599,579
1905	4,250,000	11,745,081	1,520,063	1916*	6,800,000	16,596,921	3,973,113
1906	1,800,000	15,009,326	1,825,475	1917*	8,000,000	23,424,058	5,169,926

*Of the above quantity imported in 1914, 13,307,631 pounds were shelled and 5,730,774 pounds unshelled; in 1915, 12,208,551 shelled and 4,902,713 were not shelled; in 1916, 13,667,766 shelled, and 2,929,155 not shelled; and in 1917, 18,413,225 shelled and 5,010,833 not shelled.

Practically all almonds are imported from Spain, Italy and France.

WALNUTS, 1896-1917.

(Duty on imported walnuts, unshelled, 2 cents per pound; shelled, 4 cents.)

Year	California crop, pounds	Imported	
		Pounds	Value
1896	8,230,000		
1897	7,970,000		
1898	11,300,000		
1899	11,160,000		
1900	10,860,000		
1901	13,800,000		
1902	17,140,000		
1903	11,000,000	12,362,567	\$1,106,033
1904	15,180,000	23,670,761	1,729,378
1905	11,500,000	21,684,104	1,469,463
1906	12,250,000	24,917,028	2,193,653
1907	14,000,000	32,597,592	2,969,649
1908	18,000,000	28,887,110	2,765,486
1909	17,000,000	26,157,703	2,409,644
1910	15,000,000	33,641,466	3,538,264
1911	22,000,000	33,619,434	4,471,227
1912	22,024,000	37,213,674	4,069,515
1913	22,378,354	26,662,441	3,499,981
1914*	17,778,000	37,195,728	4,339,481
1915*	29,634,000	33,445,838	3,984,227
1916*	29,244,000	36,858,934	5,056,945
1917*	30,810,000	38,725,362	6,210,794

Years for which no figures are given are included in "Other nuts."

*Of the above number imported in 1914, 28,267,699 pounds were unshelled, and 8,928,029 shelled, and in 1915 22,338,348 pounds unshelled, and 11,107,490 pounds shelled. In 1916, 14,228,714 pounds were shelled, and 22,630,220 pounds not shelled, and in 1917 13,068,518 pounds were shelled and 25,666,844 pounds not shelled.

IMPORTED NUTS, 1896-1917.

(Duty on imported peanuts, unshelled, $\frac{1}{2}$ of 1 per cent per pound; shelled, $\frac{1}{4}$ of 1 per cent per pound; all others (except almonds, peanuts and walnuts) 1 cent per pound.)

Year	Peanuts and other ground nuts		Miscellaneous nuts, value	Total value, all nuts*
	Pounds	Value		
1896			\$868,799	\$2,075,132
1897			848,511	2,200,161
1898			1,002,344	2,237,938
1899			879,166	2,727,542
1900			1,326,804	2,978,834
1901			1,518,484	3,268,855
1902			1,971,072	4,044,341
1903			1,514,406	4,866,398
1904			1,523,462	5,471,166
1905			2,062,344	6,158,343
1906			2,055,557	7,373,425
1907			2,100,274	9,742,883
1908			1,790,375	9,643,943
1909			1,717,374	8,664,253
1910	29,276,235	\$1,234,088	1,218,052	13,246,742
1911	18,834,441	765,033	1,254,943	14,498,413
1912	15,558,038	575,282	858,837	15,827,988
1913	18,756,422	769,666	977,161	13,965,569
1914	44,549,789	1,899,237	1,357,520	19,782,924
1915	24,184,673	824,759	884,850	16,819,799
1916	28,413,680	1,051,038	1,969,262	21,160,491
1917	34,966,760	1,533,175	1,566,737	32,865,014

*Including cocoanuts, cream and Brazil nuts, and filberts.

In 1913 the unshelled peanuts imported amounted to 12,281,580 pounds, and the shelled to 6,801,415 pounds; in 1914 the unshelled 17,472,631, and the shelled 27,077,158; in 1916, 9,020,848 were not shelled, and 19,392,832 shelled.

EXPORTS OF DOMESTIC NUTS, 1896-1917.

Year	Peanuts		All other nuts, value	Total value, all nuts
	Pounds	Value		
1896				\$93,283
1897				125,805
1898				161,432
1899				140,250
1900				156,490
1901				218,743
1902				304,241
1903				299,558
1904				330,366
1905				309,195
1906*	7,180,163	\$275,927	\$140,959	416,886
1907	6,386,012	278,236	103,929	382,165
1908	5,503,685	283,819	89,205	373,024
1909	5,501,107	242,569	246,284	488,853
1910	4,484,613	224,779	156,284	381,063
1911	5,447,185	276,651	328,151	604,802
1912	5,920,711	305,465	303,473	608,938
1913	7,301,381	366,016	367,569	733,585
1914	8,054,817	421,367	398,312	819,679
1915	5,875,076	325,725	377,486	703,211
1916	8,669,430	450,765	441,512	892,277
1917	22,413,297	1,336,638	404,399	1,741,037

*Prior to 1906 peanuts were not shown separately in the customs returns.

TABLE XXXV.

ORCHARD FRUITS BY COUNTIES.*

Number of Bearing Trees in 1910, and Production.

(Compiled from the Census Reports.)

Counties	Apples		Apricots		Cherries	
	Number of trees	Bushels	Number of trees	Bushels	Number of trees	Bushels
Alameda	26,045	38,346	270,461	399,035	89,284	89,662
Alpine	1,140	642	7		63	2
Amador	8,592	11,990	1,197	949	1,143	1,588
Butte	34,425	42,671	9,900	11,126	4,317	4,403
Calaveras	13,341	21,583	672	465	459	329
Colusa	3,067	4,507	4,420	3,323	223	228
Contra Costa	13,429	18,494	38,812	19,906	7,258	5,139
Del Norte	3,234	3,110			48	38
El Dorado	31,929	26,529	503	786	3,259	3,051
Fresno	32,097	34,505	186,823	206,536	2,729	104
Glenn	4,617	4,909	6,890	2,310	78	48
Humboldt	73,010	1,552,585	235	267	3,733	5,040
Imperial	86	3	1,922	673		
Inyo	19,611	35,430	342	416	539	331
Kern	7,725	10,006	33,573	48,955	163	64
Kings	4,196	8,507	124,007	234,147	11	205
Lake	22,254	18,537	1,463	536	590	764
Lassen	12,679	10,349	70	17	439	61
Los Angeles	101,433	118,528	122,769	181,079	795	168
Madera	20,576	11,227	9,408	6,188	40	20
Marin	15,995	6,907	1,699	633	165	111
Mariposa	16,001	29,141	233	415	120	216
Mendocino	63,263	112,856	187	305	1,181	1,576
Merced	8,941	7,267	7,381	4,263	343	64
Modoc	28,969	60,202	652	788	963	1,033
Mono	1,068	850	6	1	197	190
Monterey	290,404	501,847	27,996	36,067	1,729	723
Napa	41,301	47,216	16,953	16,273	16,955	20,895
Nevada	20,223	25,800	193	133	1,727	1,810
Orange	11,992	12,218	129,352	328,931	23	9
Placer	42,704	26,848	4,092	1,023	31,209	67,429
Plumas	8,534	1,391	18		65	10
Riverside	10,577	9,977	83,069	145,159	962	765
Sacramento	10,948	18,235	10,480	9,951	17,173	33,729
San Benito	26,593	31,385	61,694	106,806	3,421	1,761
San Bernardino	55,150	79,077	111,125	171,763	3,067	2,928
San Diego	37,662	45,687	20,858	33,001	1,792	1,729
San Francisco	40	230				
San Joaquin	5,053	7,019	53,007	27,474	21,590	13,669
San Luis Obispo	35,006	56,047	20,123	25,929	702	463
San Mateo	18,634	31,317	3,694	1,259	671	228
Santa Barbara	2,744	38,511	15,512	29,237	659	238
Santa Clara	102,841	118,603	783,585	958,163	173,002	90,198
Santa Cruz	647,136	2,090,968	63,021	95,042	17,608	25,368
Shasta	35,440	47,556	839	2,141	2,785	2,311
Sierra	3,398	4,895			67	114
Siskiyou	31,055	19,521	366	863	1,850	1,478
Solano	4,862	6,857	310,262	180,011	53,923	52,512
Sonoma	386,740	818,725	9,087	10,374	43,927	58,710
Stanislaus	3,680	1,693	20,451	14,122	1,182	390
Sutter	5,433	7,806	5,986	3,443	1,249	967
Tehama	15,633	16,256	30,446	26,128	624	321
Trinity	4,272	4,951	41	33	247	205
Tulare	25,261	28,241	48,834	56,042	316	290
Tuolumne	13,544	16,558	162	120	144	118
Ventura	15,179	19,170	219,836	562,978	392	1,047
Yolo	2,512	3,654	117,228	101,396	4,534	5,908
Yuba	5,468	7,133	1,481	342	559	265
Totals	2,482,762	6,335,073	2,992,453	4,066,823	522,304	501,013

*For the number of bearing trees in orchard fruits in 1890 and 1900, see Report for 1912, pages 162-164.

TABLE XXXV—Continued.

ORCHARD FRUITS BY COUNTIES.*

Number of Bearing Trees in 1910, and Production.

(Compiled from the Census Reports.)

Counties	Peaches and nectarines		Pears	
	Number of trees	Bushels	Number of trees	Bushels
Alameda	12,555	14,561	70,382	99,994
Alpine	28	40	79	36
Amador	16,349	20,606	5,112	4,430
Butte	255,047	356,683	22,159	25,318
Calaveras	5,954	6,794	2,178	5,358
Colusa	4,075	3,372	2,432	1,906
Contra Costa	39,461	38,525	68,088	75,803
Del Norte	42	32	129	154
El Dorado	61,800	58,738	49,672	36,848
Fresno	2,277,314	2,727,978	13,356	7,548
Glenn	6,420	3,175	1,655	1,500
Humboldt	9,471	10,552	3,804	8,196
Imperial	432	228	347	11
Inyo	4,602	5,037	2,668	2,676
Kern	35,149	30,278	1,057	1,065
Kings	777,697	803,637	4,379	8,007
Lake	9,288	8,336	39,075	39,871
Lassen	1,455	1,753	632	479
Los Angeles	160,197	234,581	16,149	21,161
Madera	40,989	20,996	1,185	1,164
Marin	6,313	3,092	4,151	8,979
Mariposa	1,613	1,803	701	1,528
Mendocino	6,928	10,031	15,829	23,666
Merced	134,991	90,954	5,704	2,624
Modoc	2,113	1,866	1,888	3,334
Mono	91	61	123	122
Monterey	7,381	8,693	5,194	8,061
Napa	71,060	65,843	50,210	81,812
Nevada	17,873	22,488	36,800	26,279
Orange	12,461	13,104	2,100	2,973
Placer	683,824	1,064,566	142,999	115,950
Plumas	184	85	261	112
Riverside	72,933	77,138	18,447	13,424
Sacramento	99,635	129,981	161,094	308,352
San Benito	12,301	25,132	12,409	22,908
San Bernardino	197,763	246,049	2,302	3,421
San Diego	29,800	29,530	6,023	7,585
San Francisco	120	125		
San Joaquin	185,073	229,175	13,664	13,096
San Luis Obispo	10,614	10,325	5,097	8,869
San Mateo	572	643	1,688	1,923
Santa Barbara	9,560	11,337	2,612	5,148
Santa Clara	437,677	574,514	142,550	206,214
Santa Cruz	11,868	10,873	23,100	33,456
Shasta	98,950	110,712	33,952	64,803
Sierra	157	83	148	414
Siskiyou	4,371	3,779	2,300	2,164
Solano	341,266	474,444	182,194	319,303
Sonoma	287,220	165,396	109,965	128,421
Stanislaus	154,553	89,385	4,158	1,804
Sutter	149,057	287,894	17,911	32,754
Tehama	260,204	276,049	141,584	26,992
Trinity	886	873	738	1,468
Tulare	714,494	622,373	6,483	4,948
Tuolumne	3,063	2,063	1,056	2,004
Ventura	8,943	15,630	2,597	8,776
Yolo	116,003	219,660	38,115	71,897
Yuba	8,744	5,517	10,220	25,996
Totals	7,829,011	9,267,118	1,410,905	1,928,097

*For the number of bearing trees in orchard fruits in 1899 and 1900, see Report for 1912, pages 162-164.

TABLE XXXV—Continued.

ORCHARD FRUITS BY COUNTIES.*

Number of Bearing Trees in 1910, and Production.

(Compiled from the Census Reports.)

Counties	Plums and prunes		Total	
	Number of trees	Bushels	Number of trees	Bushels
Alameda	157,981	157,270	627,824	799,976
Alpine	214	42	1,531	762
Amador	10,685	11,880	43,332	51,757
Butte	104,474	252,141	452,302	693,210
Calaveras	8,285	9,901	31,276	44,963
Colusa	57,468	111,668	71,796	125,122
Contra Costa	58,177	54,831	225,939	213,351
Del Norte	96	222	3,549	3,556
El Dorado	32,764	23,327	180,017	149,543
Fresno	66,926	139,252	2,579,859	3,116,325
Glenn	24,860	8,559	44,565	20,613
Humboldt	26,950	12,161	117,368	1,589,053
Imperial	347	3	3,170	926
Inyo	2,349	1,845	30,164	45,760
Kern	58,075	74,053	136,088	164,626
Kings	132,192	258,851	1,048,506	1,315,117
Lake	47,244	54,807	120,037	122,945
Lassen	2,223	1,069	17,511	13,731
Los Angeles	43,592	34,295	446,698	590,929
Madera	7,570	435	80,156	40,077
Marin	3,775	2,625	32,263	22,420
Mariposa	762	1,168	19,461	34,233
Mendocino	37,197	63,356	125,282	212,320
Merced	5,401	3,437	163,013	108,843
Modoc	3,182	4,660	37,776	71,883
Mono	86	10	1,595	1,234
Monterey	6,189	4,122	339,105	559,680
Napa	299,613	407,023	497,391	639,976
Nevada	6,955	7,055	84,259	84,046
Orange	4,569	5,295	160,667	362,981
Placer	279,766	323,731	1,190,074	1,673,123
Plumas	510	161	4,574	1,709
Riverside	34,357	54,873	220,723	301,493
Sacramento	206,553	269,547	506,961	772,257
San Benito	91,066	223,443	207,537	411,477
San Bernardino	8,779	6,473	379,533	509,989
San Diego	16,022	8,204	112,993	126,427
San Francisco	945	575	1,105	930
San Joaquin	83,641	102,991	364,290	395,038
San Luis Obispo	21,383	15,236	93,217	117,126
San Mateo	18,279	14,686	43,655	50,130
Santa Barbara	2,730	4,822	34,200	89,858
Santa Clara	3,387,455	3,854,070	5,043,766	5,807,595
Santa Cruz	112,269	109,959	875,642	2,366,344
Shasta	87,959	159,696	262,136	387,566
Sierra	232	262	4,002	5,768
Siskiyou	5,683	4,406	45,708	31,735
Solano	465,341	714,730	1,357,911	1,747,916
Sonoma	569,232	596,953	1,364,105	1,784,301
Stanislaus	6,095	3,492	190,515	111,804
Sutter	65,723	136,082	244,587	469,829
Tehama	92,459	183,024	441,070	478,915
Trinity	1,083	1,329	7,313	8,906
Tulare	264,337	639,586	1,059,830	1,351,573
Tuolumne	1,404	1,302	19,554	22,254
Ventura	12,541	15,755	259,682	618,490
Yolo	119,193	214,792	397,748	617,448
Yuba	3,487	2,447	30,264	41,998
Totals	7,168,705	9,317,979	22,485,195	31,501,507

*For the number of bearing trees in orchard fruits in 1890 and 1900, see Report for 1912, pages 162-164.

TABLE XXXVI.

TROPICAL FRUITS BY COUNTIES.*

Number of Bearing Trees in 1910, and Production.

(Compiled from the Census Reports.)

Counties	Figs		Olives		Lemons	
	Number of trees	Pounds	Number of trees	Pounds	Number of trees	Boxes
Alameda	482	9,990	10,963	45,285	660	2,144
Alpine			4	50		
Amador	347	24,315	274	2,600	8	12
Butte	9,518	337,725	73,453	2,242,445	2,223	1,222
Calaveras	1,839	142,990	4,065	10,465	19	37
Colusa	1,391	60,577	336	5,716	199	148
Contra Costa	293	16,235	9,744	340,410	148	92
Del Norte	1					
El Dorado	587	74,060	37	4,020		
Fresno	120,124	15,898,146	72,788	655,302	12,389	10,083
Glenn	879	63,235	445	14,290	593	432
Humboldt	82	2,430				
Imperial	606	10,450	41		36	4
Inyo	14	400				
Kern	1,475	92,990	393	2,950	54	37
Kings	391	26,720	5	400		
Lake	1,062	41,896	3,198	7,390	8	
Lassen						
Los Angeles	5,736	397,376	84,934	1,549,419	219,149	704,801
Madera	4,321	82,290	18,010	38,035	15	16
Marin	201	1,065	48	150	26	25
Mariposa	461	135,455	2,711	2,452	35	50
Mendocino	358	25,125	7	100		
Merced	9,837	793,495	6,981	90,916	209	217
Modoc						
Mono						
Monterey	217	9,146	657	2,622	7	
Napa	1,234	20,889	20,176	36,885	258	86
Nevada	1,468	67,225	419	4,273	6	
Orange	1,066	25,123	67,046	828,204	46,954	74,227
Placer	4,463	105,802	26,396	417,415	71	683
Plumas	6		6			
Riverside	2,054	73,796	80,572	1,281,970	115,02	304,683
Sacramento	1,145	54,450	34,077	969,962	2,50	1,636
San Benito	128	4,615	4			4
San Bernardino	1,144	33,790	30,190	486,478	157,731	630,108
San Diego	2,459	94,323	109,871	2,559,792	195,318	473,543
San Francisco			1			
San Joaquin	4,037	232,063	19,998	506,268	75	58
San Luis Obispo	819	43,317	1,597	28,877	955	1,475
San Mateo	36	525	7,187	141,006	1	1
Santa Barbara	858	40,255	44,258	1,275,022	46,181	134,168
Santa Clara	985	31,500	13,945	639,227	996	1,201
Santa Cruz	333	12,845	1,243	2,500	349	233
Shasta	2,306	53,270	9,616	7,541	7	1
Sierra						
Siskiyou	3	10			2	
Solano	4,598	497,159	1,221	34,874	126	163
Sonoma	3,850	98,105	10,863	54,490	396	235
Stanislaus	37,676	397,675	5,458	129,384	576	262
Sutter	4,675	447,470	3,018	170,581	602	641
Tehama	3,176	115,472	17,373	394,449	356	354
Trinity	20	255			2	
Tulare	15,750	1,037,350	5,605	89,921	41,069	65,466
Tuolumne	237	17,435	10		6	
Ventura	618	29,653	25,961	686,171	95,018	347,804
Yolo	10,476	1,128,670	4,482	307,395	183	222
Yuba	3,159	81,200	6,660	64,710	109	147
Totals	269,001	22,990,353	836,347	16,132,412	941,293	2,756,221

*For the number of bearing trees of tropical fruits in 1890 and 1900, see Report for 1912, pages 165-167.

NOTE.—The production of most fruits being in pounds and citrus fruits in boxes, the total production for each county can not be given.

TABLE XXXVI—Continued.

TROPICAL FRUITS BY COUNTIES.*

Number of Bearing Trees in 1910, and Production.

(Compiled from the Census Reports.)

Counties	Oranges		Pomeloes		Total trees
	Number of trees	Boxes	Number of trees	Boxes	
Alameda	3,782	6,074		2	15,900
Alpine					4
Amador	151	283			780
Butte	147,412	128,108	12	171	285,442
Calaveras	388	544	8	2	6,815
Colusa	1,537	2,970	70	147	8,537
Contra Costa	402	453			10,597
Del Norte					1
El Dorado	53	195			677
Fresno	85,781	92,640	346	431	291,754
Glenn	4,860	1,704	5	13	6,783
Humboldt	1				83
Imperial	1,410	3,012	18	1	2,411
Inyo					14
Kern	80,940	82,282	16	7	82,888
Kings	24	31			425
Lake	72	13			4,840
Lassen					
Los Angeles	1,674,695	4,124,161	6,853	11,810	1,994,402
Madera	184	114	2		22,532
Marin	79	147	5	9	387
Mariposa	1,169	1,691	1	1	4,378
Mendocino	4	8			370
Merced	1,572	1,097	11	2	18,613
Modoc					
Mono					
Monterey	29	25			913
Napa	1,192	535	9	21	23,251
Nevada	364	820	2		2,311
Orange	478,272	1,247,905	677	2,612	597,383
Placer	26,921	14,103	289	411	59,906
Plumas					12
Riverside	1,021,957	2,006,902	4,477	16,408	1,224,217
Sacramento	46,256	61,517	864	1,278	84,863
San Benito	42	10			179
San Bernardino	1,951,254	5,425,759	13,134	60,149	2,153,501
San Diego	107,457	167,201	5,764	12,950	425,260
San Francisco					1
San Joaquin	1,950	1,854	2		26,070
San Luis Obispo	794	1,225	75	49	4,253
San Mateo	25	9			7,249
Santa Barbara	4,246	12,272	716	931	99,023
Santa Clara	1,905	1,354	57	9	18,023
Santa Cruz	330	151	7	6	2,279
Shasta	55	39			11,986
Sierra					
Siskiyou					6
Solano	2,950	2,737	15		8,911
Sonoma	5,047	4,209	8	4	20,226
Stanislaus	10,492	8,087	18	1	54,291
Sutter	2,427	3,335	18	14	10,741
Tehama	10,744	7,975	5	4	31,654
Trinity					22
Tulare	801,151	758,465	8,114	13,551	872,657
Tuolumne	114	122			367
Ventura	131,681	310,239	392	909	253,754
Yolo	2,371	2,949	1,325	612	18,858
Yuba	1,263	1,409			11,205
Totals	6,615,805	14,436,180	43,424	122,515	8,726,005

NOTE.—The production of most fruits being in pounds and citrus fruits in boxes, the total production for each county can not be given.

TABLE
GRAPES AND NUTS
Number of Vines and Bearing
(Compiled from

Counties	Grapes		Almonds	
	Number of vines bearing	Production, pounds	Number of trees	Pounds
Alameda	2,390,959	20,671,600	21,190	155,871
Alpine	9,000	56,000	12	75
Amador	314,604	2,743,820	628	3,931
Butte	258,742	1,490,000	84,069	799,351
Calaveras	212,300	1,457,080	14,624	27,080
Colusa	482,417	5,010,240	16,078	90,479
Contra Costa	2,972,180	82,217,131	209,056	830,112
Del Norte				
El Dorado	581,342	4,891,740	438	8,850
Fresno	40,687,207	611,253,961	7,890	56,472
Glenn	20,416	145,300	25,739	61,055
Humboldt	4,095	76,405	304	580
Imperial	298,813	1,210,475	29	
Inyo	39,478	292,780	28	1,080
Kern	419,582	1,715,540	3,101	23,505
Kings	4,538,732	91,434,166	1,721	37,040
Lake	296,752	1,750,522	8,281	47,316
Lassen	81	800	8	
Los Angeles	4,923,877	44,846,307	76,949	57,770
Madera	1,530,630	21,105,970	2,778	7,975
Marin	115,198	1,982,560	151	1,112
Mariposa	28,647	285,740	159	1,918
Mendocino	924,191	6,471,050	229	4,260
Merced	1,281,342	12,085,751	17,182	114,499
Modoc	795	7,100		
Mono	2,000	20,000		
Monterey	79,935	754,340	2,196	24,050
Napa	8,595,338	66,876,897	18,731	90,783
Nevada	94,338	757,865	1,325	11,980
Orange	262,682	2,684,855	1,248	70
Placer	1,340,182	11,231,830	11,539	64,431
Plumas				
Riverside	1,570,794	12,133,389	21,789	168,570
Sacramento	7,627,510	399,886,705	66,372	335,257
San Benito	177,976	1,620,030	6,958	73,922
San Bernardino	5,987,127	38,608,263	634	15,479
San Diego	1,228,858	15,204,430	9,279	40,321
San Francisco	3,000	10,000		
San Joaquin	13,371,794	175,879,915	97,024	547,800
San Luis Obispo	265,481	1,937,110	9,281	46,990
San Mateo	124,980	695,440	94	425
Santa Barbara	208,595	590,485	239	3,150
Santa Clara	5,584,480	41,129,250	25,962	198,186
Santa Cruz	1,365,414	7,815,935	240	1,855
Shasta	117,481	643,463	8,056	43,210
Sierra				
Siskiyou	2,473	44,507	83	2,611
Solano	1,213,265	16,276,990	98,276	650,933
Sonoma	17,939,972	137,556,285	2,893	11,279
Stanislaus	1,932,302	18,595,445	33,726	118,198
Sutter	1,249,923	25,162,300	61,572	343,084
Tehama	1,307,218	16,416,690	32,919	219,396
Trinity	2,842	57,950	30	5
Tulare	7,227,491	95,037,424	1,977	59,822
Tuolumne	95,811	590,502	54	200
Ventura	36,398	505,892	12,057	166,180
Yolo	2,568,019	26,109,390	149,019	1,109,760
Yuba	162,751	2,652,510	3,163	19,535
Totals	144,097,670	1,979,686,525	1,166,730	6,292,513

*For the number of grapevines and bearing trees in nuts in 1890 and 1900, see Report of 1912, pages 167-169.

XXXVII.

BY COUNTIES.*

Trees in 1910, and Production.
the Census Reports.)

Pecans		Walnuts		Total nuts	
Number of trees	Pounds	Number of trees	Pounds	Number of trees	Pounds
5	80	3,728	46,185	25,250	210,142
1	50	185	8,266	12	75
158	5,450	1,063	22,906	830	7,602
6		832	22,117	85,445	832,019
10	840	1,306	13,463	15,619	51,932
25	200	6,148	110,088	17,409	105,782
8		3		215,249	941,400
		880	10,855	6	
56	225	634	7,991	1,512	27,130
15	350	220	3,617	8,208	70,097
		498	8,220	26,336	67,707
		24	400	827	8,975
9	150	35	940	53	400
563	1,290	127	1,565	72	2,170
2	40	24	1,215	3,819	26,615
6	350	564	5,232	1,747	38,295
		8	250	8,920	55,198
313	6,400	281,837	6,138,033	16	250
5		14	560	859,349	6,204,708
		61	385	2,797	8,535
		91	2,019	212	1,497
		360	9,990	262	4,270
81	200	633	11,538	762	33,040
		3	80	17,845	127,357
				27	535
3	100	306	3,287	2,505	27,437
996		7,767	44,164	27,622	135,747
10	40	1,105	13,811	2,768	32,048
26	1,350	276,842	7,478,955	278,879	7,492,175
2		535	3,276	12,122	69,065
		4		4	
98	3,520	3,040	67,491	24,940	239,581
3	100	755	21,682	67,156	357,539
6	100	1,369	29,800	8,333	103,822
		2,228	43,777	2,900	60,742
1,080	19,205	9,159	194,829	19,651	259,730
6	250	2,455	6,548	99,499	554,098
1		7,871	223,498	17,264	277,783
		223	2,010	331	2,435
70	130	96,776	2,678,039	97,091	2,681,694
136	1,000	19,070	227,955	48,398	469,926
5		4,015	25,880	4,757	40,640
7	100	1,168	14,380	9,339	64,760
		24	1,260	24	1,260
2		30	275	185	5,046
134	2,175	1,806	27,636	100,239	681,194
43	220	11,955	144,040	16,631	168,151
25	760	864	10,995	34,701	134,103
11		671	7,130	62,289	850,214
10		1,569	13,500	34,555	237,596
1		58	1,510	91	1,560
26	505	1,942	28,612	3,945	88,939
1		175	6,465	240	6,840
301		98,622	3,665,935	110,984	3,832,116
9	245	1,270	19,953	150,622	1,151,868
6	30	287	4,665	3,458	24,280
4,226	44,955	853,237	21,432,266	2,034,302	28,378,115

TABLE XXXVIII.

SMALL FRUITS BY COUNTIES.

Number of Acres in 1910, and Production.

(Compiled from the Census Reports.)

Counties	Strawberries		Blackberries and dewberries		Total*	
	Acres	Quarts	Acres	Quarts	Acres	Quarts
Alameda	18	41,770	12	20,225	401	890,867
Alpine						1,510
Amador	6	9,259	13	18,655	29	46,124
Butte	48	54,513	57	76,793	148	207,794
Calaveras	5	11,210	14	13,366	34	37,948
Colusa	1	2,120	5	7,039	7	12,564
Contra Costa	1	2,880	3	2,774	6	13,654
Del Norte	1	1,050		900	1	1,760
El Dorado	5	8,215	11	12,430	23	81,427
Fresno	148	750,708	91	247,186	310	1,196,643
Glenn	2	2,945	4	8,980	8	15,005
Humboldt	58	152,758	4	5,757	87	219,489
Imperial			1	1,426	1	1,726
Inyo	5	5,591	8	9,835	21	18,621
Kern	2	2,112	26	24,900	34	32,087
Kings	15	53,810	13	33,260	31	94,940
Lake	6	12,227	15	15,261	25	33,910
Lassen	3	8,390	2	2,354	20	14,839
Los Angeles	1,380	5,135,203	280	1,019,735	1,975	7,837,987
Madera	2	1,750	3	1,390	7	4,270
Marin	1	1,750		380	3	5,130
Mariposa	1	1,217	2	4,470	7	8,705
Mendocino	22	35,296	14	11,900	57	69,492
Merced	5	8,377	21	25,230	34	47,293
Modoc	9	10,113	9	11,515	37	44,168
Mono		1,220		48	1	5,011
Monterey	263	2,449,084	56	268,180	407	3,663,576
Napa	22	45,316	26	18,903	59	72,508
Nevada	4	7,047	15	29,245	55	78,369
Orange	76	192,365	43	71,907	205	401,218
Placer	433	1,062,214	62	198,039	582	1,581,263
Plumas	6	6,828	1	584	13	11,881
Riverside	27	59,305	28	49,554	64	123,772
Sacramento	450	1,676,826	52	143,729	554	1,974,178
San Benito	35	34,367	1	4,310	54	68,426
San Bernardino	34	52,917	68	112,255	130	190,564
San Diego	43	275,744	22	45,635	87	369,546
San Francisco						
San Joaquin	33	93,367	31	51,650	92	226,154
San Luis Obispo	45	61,895	30	42,845	137	131,117
San Mateo	56	210,850	10	15,030	69	232,635
Santa Barbara	24	125,766	32	99,084	63	233,123
Santa Clara	460	989,600	228	304,022	1,011	1,785,865
Santa Cruz	489	1,384,784	116	163,757	744	1,707,208
Shasta	44	51,975	32	35,067	95	112,667
Sierra	2	2,623	1	964	6	5,997
Siskiyou	7	15,011	10	11,057	31	41,053
Solano	5	11,060	5	5,560	12	19,110
Sonoma	103	195,330	930	1,413,936	1,471	2,106,103
Stanislaus	95	184,399	53	84,073	161	290,431
Sutter	1	1,550	7	8,008	16	24,186
Tehama	36	57,921	7	11,163	49	83,593
Trinity	5	4,668	5	4,307	15	14,039
Tulare	19	44,078	70	87,262	119	181,574
Tuolumne	5	10,652	8	9,729	19	29,153
Ventura	14	72,350	7	18,566	31	138,600
Yolo	1	210	6	6,162	10	10,774
Yuba	4	4,750	6	8,692	19	22,408
Total	4,585	15,694,326	2,576	4,896,524	9,687	26,824,120

*The totals include other fruits not specified.

PART VIII.

CALIFORNIA WINE INDUSTRY.

Production of Wine and Brandy in Other States, Sweet Wines and Brandy, California Vineyards, Dry Wines, Sparkling Wines, Grape Juice, Price of Wine Grapes, Vintages 1895-1917, Production of Beer 1913-1917, Imports and Exports of Wine and Brandy.

The California wine industry, with its extensive vineyards of wine grapes and enormous investments of capital, has attained such proportions as to demand special notice. In sweet wines the production has more than doubled within the last ten years, and the output, both in wine and brandy is much greater than that of all other states combined.

The State Board of Viticultural Commissioners estimates that more than half the acreage of vineyards in the state is planted to wine grapes, the area being about 170,000 acres.

Wine and Brandy.

Almost all the sweet wine and brandy produced in the United States is made in California. New York makes small quantities of port, sherry and sweet catawba; New Jersey, port and sweet catawba; North Carolina and Virginia, scuppernong; and Ohio appears as a maker of sweet wines in 1915 for the first time in ten years, with 6,863 gallons of scuppernong, and 1,015 gallons of sweet catawba, but in 1916 made no sweet wine. Missouri also made a small quantity of sweet wine some ten years ago, but only about 1,500 gallons. The total production of sweet wine in the United States in 1917 was 20,981,462* gallons, of which quantity California supplied 20,376,366 gallons, and all other states only 605,096 gallons. Of fruit brandy California produced 7,871,759 gallons, and all other states 379,338 gallons, or a total of 8,251,097 gallons in the United States.

Owing to the heavy tax on brandy in 1915-1916 for fortifying sweet wines, the production of both wine and brandy showed a heavy falling off, the output of sweet wine being only about-one-third of a normal vintage, and brandy decreased by one-half.

Production of Sweet Wines in the United States in 1914-1917.
(After fortification)

State	Gallons, 1914	Gallons, 1915	Gallons, 1916	Gallons, 1917
New Jersey, port.....	18,845	17,373	11,334	17,111
New Jersey, sweet catawba.....	716	1,982	1,561	718
New York, port.....	200,853	58,694	91,397	166,404
New York, sherry.....				48,564
New York, sweet catawba.....	371,370	214,396	319,203	359,670
North Carolina, scuppernong.....	47,752			
Virginia, scuppernong.....	215,550			
Ohio, sweet catawba.....		1,015		
Ohio, scuppernong.....		6,863		3,759
Ohio, red Concord.....				4,729
Ohio, Delaware.....				4,138
Fractional gallons.....	2	1	2	8
Totals.....	855,088	300,324	423,497	605,096
California.....	17,473,353	16,868,374	6,578,510	20,376,366
Totals, United States.....	18,328,441	17,168,698	7,002,007	*20,981,462

*Not including Hawaii, but the quantity made there is small.

Production of Fruit Brandy in the United States, 1914-1917.

State	Gallons, 1914	Gallons, 1915	Gallons, 1916	Gallons, 1917
Sweet wine making states:				
New Jersey -----	75,888	95,778	56,159	54,493
New York -----	70,606	116,454	25,781	39,019
North Carolina -----	239	1,114		
Ohio -----	100,621	100,734		160,133
Other states (not making sweet wine) -----	295,424	301,491	297,880	125,693
Totals -----	542,778	615,571	379,820	379,338
California -----	6,765,119	7,906,380	3,779,532	7,871,759
Totals, United States -----	7,307,897	8,521,951	4,159,352	*8,251,097

*For the early history of wine production in California, see Report of 1912, pages 170-172 and Report of 1913, pages 152-157.

Great Wine Grape Vineyards.

Some of the California vineyards are now the largest and best cultivated in the world. In the southern part of the state there is the large vineyard of the Italian Vineyard Company at Guasti in San Bernardino County, comprising 3,547 acres of all the best varieties, including Alicante Bouschet, Zinfandel, Burger, Folle Blanche, and a dozen others. In central California there is the Wahtoke vineyard, near Reedley, in Fresno County, of 3,631 acres, with 2,500 acres already planted and in bearing and containing some twenty of the leading varieties; and in northern California there is the Vina vineyard, in Tehama County, which until the last year or two had 1,500 acres, mostly in Zinfandel and Burger, but the vines are being removed to make way for orchard trees or other crops. This step has been taken because although the vineyard paid, it had become very foul with Johnson grass, which could not be eliminated as long as the vines were left in place. These are the largest vineyards in the state.

There is no reliable data available regarding the quantity produced of the various kinds of dry wine, but since 1890 the exact figures for sweet wines and brandy have been recorded. The quantity of sweet wine has increased during the last twenty years from 1,083,000 gallons in 1891 to 23,467,000 in 1912 (August-December, 1911), which is the largest in the history of the industry.

Port and sherry are the two principal wines, the former leading with an average of 9,000,000 gallons, while the production of sherry is about 5,000,000 gallons, but in 1903 and 1912, it amounted to 8,000,000 gallons. Muscatel and Angelica are the next favorites, followed by Malaga and Tokay.

The imports of foreign wines have remained steady during the last few years, the value being about \$8,000,000 to \$10,000,000 annually.

It is acknowledged that the best wines of California and of South America are equal to those produced in Europe. California grows the principal wine grapes of France, Italy, Spain, Portugal and Germany, and the variety of types of wines produced is unequalled by any country in the world. Conditions suitable for the growth of any variety, including the American varieties of the Eastern States, are found here.

Surplus table and shipping grapes are used for the manufacture of wine, but the qualities desirable in a shipping grape differ from those

of a good wine grape and the product is inferior. They are more suitable for making brandy, which is their principal use. Surplus raisin grapes are used for the same purposes, but the quality is somewhat better. Large quantities of sweet wine and brandy are made from the Muscat of Alexandria and form a special type of their own.

The great bulk of all the dry and sweet wines and of brandy is made from special wine grapes which are unsuited for other purposes.

Wine Grapes Used In California.*

Practically all the principal wine grapes of Europe have been introduced into California and tested. About four-fifths of the wine, both dry and sweet, however, is made from about a dozen varieties, and between forty and fifty will include over 95 per cent of the wine grapes.

The Zinfandel is the typical red wine grape of California and is grown in larger quantities than any other. From it the bulk of dry and sweet red wines is made. The proportion of Zinfandel, however, tends to diminish in newer plantings. Other red wine varieties largely planted are Carignane, Petite Sirah, Mataro, Petit Bouschet, Alicante Bouschet, Grenache, Blue Elbling and Charbono. The commonest white wine grapes are Burger, Colombar, Palomino, Green Hungarian, Feher Szagos and Muscat of Alexandria. Of table and raisin grapes, used also largely for wine making, the principal are, besides the Muscat, the Flame Tokay, Malaga, Sultana, Thompson's Seedless and Verdal.

The fine wines are made principally of Petite Sirah, Colombar and Semillon, though a large number of other fine varieties are used in varying amounts.

The yield of average vineyards varies from one or two tons per acre to eight or ten tons. This difference depends principally on the soil and climate and on the methods of the grape grower. Some varieties have the reputation of being heavy bearers and some of being light. The differences, however, are more those of proper adaptation to conditions and the use of proper viticultural methods.

Wine Grapes Recommended for California.

FOR COOLER REGIONS.

Fine wines of Rhine types: Franken Riesling, Johannisberger, Traminer.

Fine wines of Sauterne type: Semillon, Colombar, Sauvignon Blanc.

Fine wines of Chablis type: Marsanne, Chardonay, Peverella.

Bulk white wines: Palomino, Green Hungarian.

Fine wines of Medoc type: Cabernet Sauvignon, Beclan, Blue Portuguese, Verdot, Merlot.

Fine wines of Hermitage type: Petite Sirah, Mondeuse, Tannat.

Bulk red wines: Zinfandel, Carignane.

FOR WARMER REGIONS.

Fine white wines: Franken Riesling, Vernaccia Sarda, Marsanne.

Bulk white wines: Burger, Folle Blanche, West's White Prolific.

Fine red wines: Valdepeñas, St. Macaire, Lagrain, Gros Mansenc, Barbera, Refosco.

Bulk red wines: Zinfandel, Alicante Bouschet.

*Professor Frederic T. Bioletti, of the University of California.

FOR SWEET WINES.

Fine white: Furmint, Beba, Boal.

Bulk white: Palomino, Perruno, Mourisco Branco.

Fine red: Trousseau, Tinta, Madeira.

Bulk red: Grenache, Mission, Monica, California Black Malvoisie, Tinta Amarella, Alicante Bouschet.

Muscat: Muscat of Alexandria, Frontignan.

Some varieties, such as the Riesling, give fine wines, though of different character, wherever they are planted. Others produce a fine wine in one locality and a poor wine in another. The Cabernet Sauvignon produces a fine wine in the cooler regions and a harsh, disagreeable wine in the hot regions. The Valdepeñas produces a better wine in the hot interior than in the coast regions.

Most of the varieties recommended for bulk wines are capable of yielding fine wines under favorable conditions, when blended with a sufficient quantity of finer varieties.

The production of wine and brandy is given for the fiscal year ending June 30, but as almost all the wine is made in the fall of the year, the vintage of sweet wines is really that of the previous year.

The production of sweet wine in the state during the 1915 season (August to December) fell off enormously, owing to the prohibitive tax levied by the Federal government under the emergency revenue act of October 22, 1914, the total vintage amounting to only 6,578,510 gallons, the smallest quantity since 1897. The production of brandy also fell off, the total quantity produced being only 3,779,532 gallons, or about one-half of the usual production, and the smallest since the year 1906.

SWEET WINES.*

The following tabulations show the sweet wine production in the state during the vintage season of 1917:

Sweet Wine Produced in Counties of First Internal Revenue District.

	Port	Sherry	Muscat	Angelica	Madeira	Tokay	Malaga
Fresno	1,921,294.42	2,062,807.44	869,498.75	501,181.67	29,126.03	56,254.58	
Kings		718,875.89	281,287.67				
Madera	389,117.62	85,676.08	8,267.28	106,867.41			
Merced	235,219.79	196,231.10					
Napa	12,075.66		38,138.80	17,623.94			
Sacramento	625,986.40	1,049,869.15	37,719.11	217,088.63			
San Joaquin	1,413,799.92	355,512.62	63,256.90	538,298.00			89,747.13
Santa Clara	124,739.27	64,866.35	23,133.23	19,991.13			
Solano	2,583.20						
Sonoma	3,237.02			3,508.79			
Tulare	110,324.26	171,786.50		12,304.94			
Yolo	1,861.18	1,813.34	3,155.27	1,910.79			
Totals	4,840,268.64	5,806,928.47	1,324,457.61	1,420,730.30	29,126.03	56,254.58	89,747.13

Total gallonage 13,567,512.73 of sweet wine, First Internal Revenue District.

*From the Report of the State Board of Viticultural Commissioners.

Sweet Wine Produced in Counties of Sixth Internal Revenue District.

	Port	Sherry	Muscadel	Angelica	Malaga	Marsala
Los Angeles	63,123.45	175,528.56	26,209.34	17,080.55	3,391.15	-----
Riverside	475,115.98	164,806.96	107,892.37	77,506.08	-----	-----
San Bernardino	608,280.04	691,040.57	83,806.51	389,354.90	19,776.06	140,021.81
Totals	1,141,519.47	1,031,375.10	217,910.22	464,001.58	23,167.21	140,021.81

Total gallonage 3,017,965.34 of sweet wine in Sixth Internal Revenue District.

Total Sweet Wine Production in State, 1917 Vintage.

	Gallons		Gallons
Port	5,881,788.11	Tokay	56,254.58
Sherry	6,838,803.57	Malaga	112,914.34
Muscat	1,542,367.83	Marsala	140,021.81
Angelica	1,884,731.83		
Madeira	22,126.03	Total	16,585,508.10

The total brandy production in 1917 amounted to 5,042,836 gallons. The above production of wine and brandy in California will appear in the report of the Internal Revenue as for the fiscal year ending June 30, 1918, as some of the sweet wines are produced in the spring months of the year. This is explained in the summary of California vintages given on page 208.

DRY WINE PRODUCTION.*

No accurate record of dry wine production in California is obtainable, because this class of wine is made without government supervision and private records of inventories of this class of wine as far as individual producers are concerned are not given out. This department, however, is in a position to make a fairly accurate estimate of the dry wine production from the general knowledge of the output by counties, and we give this estimate in the following tabulation:

	Gallons
Alameda County and bay cities, including wine made in cellars of foreigners in San Francisco	3,000,000
Napa County	3,000,000
Contra Costa County	500,000
Mendocino County	250,000
Sonoma County	5,000,000
Santa Clara County	2,000,000
Santa Cruz County	20,000
Sacramento County	800,000
Lodi section	3,000,000
Fresno section	300,000
Southern California	1,650,000
Various other sections	500,000
Total	20,020,000

*From the Report of the State Board of Viticultural Commissioners.

It required 148,000 tons of grapes to produce this amount of wine. The purchase price of these grapes ranged from \$15 to \$35 per ton.

It is likely that several millions more gallons of dry wine would have been made in the state if such a large quantity of the early dry wine

grapes (amounting to 4,000 carloads) had not been sold for shipment out of California. This was an unusual feature of the past vintage and it should be welcome news to the growers of wine grapes in the state for the business is very likely to increase and the probability of over-production of wine grapes and consequent lowering of prices to the producers is rather remote in the years to come. The price paid for these wine grapes which were sent out of the state ranged from \$16 to \$22 per ton; and when these were disposed of in the East the delivered price was in the neighborhood of \$60 per ton.

Sparkling Wines, 1911-17.

The manufacture of sparkling wines is now engaging the attention of the wine makers in California and has proved to be successful. The production of naturally fermented champagne in the bottle during the last six years has varied considerably, the quantity made during this period being estimated as follows:

Year	Bottles
1911	580,000
1912	800,000
1913	1,000,000
1914	1,100,000
1915	732,600
1916	880,000
1917	996,000

The bottling is done in the months of June and July of the following year.

Grape Juice.

The manufacture of grape juice in this state continues to decrease. The quantity made in 1916 is estimated at about 250,000 gallons, and it is claimed that so far there is no profit in its manufacture. In 1917 it is estimated that only 100,000 gallons were made.

Many judges consider that some of the Eastern varieties of grapes, such as the Concord, are better suited for the making of grape juice.

Prices of Wine Grapes.

The prices paid for grapes vary considerably, according to the varieties and districts, and also according to the size of the crop from year to year.

In Fresno County, in 1911, the price paid for average sweet wine grapes (not including Muscats) was \$10 per ton, and in 1912 from \$5 to \$6 per ton.

In other parts of the San Joaquin Valley and the Sacramento Valley \$9 per ton was paid for average wine grapes in 1911, and as high as \$11 for special varieties. In 1912 standard grapes were \$6 per ton, and for special varieties, or under contract, as high as \$10 per ton. During the year 1913 the average price was \$10 per ton, and \$27.50 per ton in dry wine districts in the coast counties. In 1914 the price paid to growers ranged from \$6 a ton for culls to \$14 for prime varieties. The price paid for grapes for dry wines ranged from \$10 to \$18 per ton, according to districts; in some localities as high as \$25 per ton was paid for choice varieties. For the vintage season of 1916,

\$14 per ton was offered, a better price than for several years, and in 1917 the price of wine grapes increased. For dry wine grapes, the highest price was \$30 per ton, and the lowest \$22 per ton, for sweet wine grapes the highest prices was \$15 per ton, and the lowest \$12 per ton.

SUMMARY OF CALIFORNIA VINTAGES,* 1895-1917.

(For the fiscal year ending June 30.)

Year	Sweet wine, gallons	Dry wine, gallons†	Total wine, gallons	Brandy used for fortification
1895.....	4,242,600	13,700,000	17,942,600	1,018,483
1896.....	6,084,009	10,900,000	16,984,009	1,484,887
1897.....	4,968,339	11,400,000	16,368,339	1,174,466
1898.....	7,024,372	24,400,000	31,424,372	1,688,949
1899.....	7,779,031	11,200,000	18,979,031	1,860,721
1900.....	8,433,383	15,000,000	23,433,383	2,063,033
1901.....	9,177,560	13,000,000	22,177,560	2,220,659
1902.....	9,301,353	33,600,000	42,901,353	2,292,721
1903.....	16,059,747	18,500,000	34,559,747	4,011,865
1904.....	13,571,845	16,000,000	29,571,845	3,329,804
1905.....	13,161,198	18,000,000	31,161,198	3,260,421
1906.....	11,502,309	29,000,000	40,502,309	2,996,998
1907.....	15,657,572	26,800,000	42,457,572	3,962,352
1908.....	16,491,169	27,700,000	44,191,169	4,233,977
1909.....	14,368,025	33,900,000	48,268,025	3,678,376
1910.....	18,086,868	27,400,000	45,486,868	4,702,863
1911.....	18,850,167	26,000,000	44,850,167	4,951,640
1912.....	23,467,444	25,000,000	48,467,444	6,153,131
1913.....	17,927,812	22,000,000	39,927,812	4,671,415
1914.....	17,473,353	26,300,000	43,773,353	4,643,812
1915.....	16,868,374	21,571,000	38,439,374	4,425,747
1916.....	6,578,510	28,000,000	34,578,510	1,156,105
1917.....	20,376,366	20,020,000	40,396,366	4,896,080

*The above figures for sweet wine and brandy are exact; the amount of dry wine can only be estimated, as no complete records are kept. Wines being made in the fall, the vintages belong to the previous year, thus the vintage for the year ending June 30, 1916, was mostly made from August to December, 1915.

SUMMARY OF SWEET WINES PRODUCED, BY VARIETIES, 1895-1917.

(Gallons.)*

(For fiscal year ending June 30.)

Year	Angelica	Frontignan	Lenoir	Madeira	Malaga
1895.....	364,297	6,133	949	-----	2,795
1896.....	466,156	6,327	6,061	-----	2,906
1897.....	330,032	9,020	-----	2,269	-----
1898.....	748,686	-----	-----	-----	11,614
1899.....	438,419	3,048	-----	-----	14,267
1900.....	870,195	-----	-----	-----	975
1901.....	548,085	-----	-----	901	-----
1902.....	465,104	-----	-----	-----	-----
1903.....	887,238	-----	-----	-----	-----
1904.....	1,029,404	-----	-----	-----	81,136
1905.....	1,187,683	-----	-----	-----	18,847
1906.....	566,604	-----	-----	-----	8,068
1907.....	1,009,600	-----	-----	-----	11,899
1908.....	1,513,534	-----	452	13,316	216,390
1909.....	919,540	-----	-----	51,716	73,518
1910.....	1,361,290	-----	-----	2,785	81,175
1911.....	1,241,431	-----	-----	363,455	223,739
1912.....	2,609,518	-----	-----	119,781	327,172
1913.....	1,640,738	-----	-----	48,714	184,308
1914.....	1,195,641	-----	-----	40,914	288,170
1915.....	1,305,978	-----	-----	81,636	75,818
1916.....	667,644	-----	-----	-----	103,984
1917.....	3,093,944	-----	-----	34,143	102,220

*After fortification.

SUMMARY OF SWEET WINE PRODUCED, BY VARIETIES, 1895-1917—
(Continued).

(Gallons.)

(For fiscal year ending June 30.)

Year	Marsala	Muscatel	Port	Sherry	Sweet Catawba	Tokay
1895		188,437	2,309,702	1,370,284		
1896		863,227	2,613,734	2,118,942		6,634
1897		960,897	1,670,495	1,994,649		974
1898		721,556	3,158,545	2,372,197		11,772
1899		819,105	3,441,592	3,053,163		9,433
1900		868,388	3,949,631	2,697,682		46,508
1901		1,611,116	4,407,250	2,597,377		12,819
1902		1,909,485	2,854,477	4,069,538		2,749
1903		1,741,952	5,171,103	8,233,871		25,580
1904		721,033	7,630,881	4,109,075		316
1905		1,398,532	5,530,310	5,011,744		14,080
1906		933,647	5,322,203	4,648,305		23,448
1907		1,484,447	7,708,226	5,443,397		
1908		2,449,211	6,015,052	6,267,323		12,400
1909		2,242,412	5,859,630	5,189,598		31,607
1910		1,767,887	9,051,017	5,690,080		133,132
1911		1,067,411	9,780,864	5,955,886		187,882
1912		2,247,219	9,522,237	8,559,868		81,645
1913		2,070,827	8,334,993	5,619,502		28,725
1914		1,512,727	9,160,980	5,235,102		39,816
1915		1,095,411	9,240,281	5,018,983		50,262
1916		758,436	3,347,957	1,694,884		5,603
1917	27,947	2,550,526	8,989,498	5,541,574		36,510

NOTE.—The wine is made in the fall of the previous year, which is the real date of the vintage, but the returns are made for the fiscal year ending June 30.

Brandy Produced in the United States.

The following summary shows that almost all the brandy made in the United States is produced by California. In 1917 California produced 7,871,759, and all other states only 379,338. The tax on brandy is \$1.10 per gallon.

The production of brandy has also greatly increased; in 1891 the quantity amounted to only 1,804,712 gallons, but the last five years, with the exception of 1916, when the production fell off, owing to the heavy tax imposed, it has averaged about 7,000,000 gallons, about 4,500,00 of which is used for fortifying the sweet wines.

Total Fruit Brandy Produced in the United States, 1891-1917.

For the fiscal year ending June 30	Production of fruit brandy, including apple, peach, and grape, gallons
1891	1,804,712
1892	3,667,465
1893	2,358,548
1894	2,948,159
1895	1,960,176
1896	3,403,852
1897	1,813,427
1898	2,906,198
1899	3,097,769
1900	3,760,487
1901	4,047,602
1902	4,220,400
1903	6,430,673
1904	5,193,262
1905	5,448,584
1906	4,444,072
1907	6,138,304
1908	6,899,823
1909	6,440,857
1910	7,656,433
1911	7,953,131
1912	9,321,823
1913	8,252,874
1914	7,307,897
1915	8,521,951
1916	4,159,352
1917	7,871,759

Under the provisions of "An act to reduce revenue and equalize duties on imports, and for other purposes," approved October 1, 1890, provision was made for the fortification with grape brandy, free of tax, of pure sweet wine, and of wine intended for exportation. This act was amended by the acts of June 7, 1906, which imposed a tax of 3 cents per gallon, on October 22, 1914, the tax was increased to 55 cents per gallon, and another act of September 8, 1916, reduced the tax on brandy used for fortification to 10 cents a gallon.

Brandy From Other Fruits.

Brandy is also produced from other fruits, and until 1907 was shown separately from grape brandy in the internal revenue returns; since then all brandy is included under the head of "fruit brandy." The quantity, however, is not large; in 1907, the last year the varieties are shown separately, fruit brandy, other than grape brandy, was only 94,558 gallons, while grape amounted to 5,367,489 gallons.

Variety and Quantity of Fruit Brandy in 1907.

Varieties	Gallons
Prune	60,594
Peach	21,210
Pear	9,339
Apricot	2,178
Apple	897
Orange	280
Fig	30
Berry	30
Total	94,558

CALIFORNIA BRANDY, 1891-1917.
(For fiscal year ending June 30.)

Year	Produced	Number of fruit distilleries		
		Used for fortification of sweet wines	Registered	Operated
1891	1,474,876	193,557	288	284
1892	2,197,613	695,844	298	295
1893	1,642,284	617,593	292	286
1894	2,256,607	1,112,794	272	267
1895	1,677,082	1,018,483	270	268
1896	2,066,404	1,484,887	235	229
1897	1,439,285	1,174,466	239	237
1898	2,382,241	1,688,949	267	267
1899	2,775,164	1,860,721	238	232
1900	3,060,078	2,063,033	208	194
1901	3,194,544	2,220,659	222	212
1902	3,464,391	2,292,721	213	209
1903	5,614,215	4,011,865	230	223
1904	4,451,928	3,329,804	225	216
1905	4,602,133	3,260,421	224	218
1906	3,864,080	2,998,998	224	201
1907	5,367,489	3,962,352	209	193
1908	*6,388,076	4,233,977	216	202
1909	*5,971,171	3,678,376	206	201
1910	*7,170,212	4,702,863	203	195
1911	*7,316,488	4,951,640	211	202
1912	*8,721,693	6,153,131	192	181
1913	*7,472,561	4,671,415	184	179
1914	*6,765,119	4,643,812	189	183
1915	*7,906,380	4,425,747	175	163
1916	*3,779,532	1,156,105	163	139
1917	*7,871,759	4,896,080	157	150

*Including fruit brandy other than grape, but the quantity is very small, as shown by the above table of the quantity produced in 1907.

Brandy Imported, 1895-1917.

(Duty, brandy and other spirits, \$2.60 per proof gallon.)

Year	Proof gallons	Value
1895	313,827	\$813,882
1896	250,704	690,761
1897	337,595	911,721
1898	137,902	395,758
1899	219,968	626,875
1900	244,100	696,540
1901	290,301	843,318
1902	316,222	911,419
1903	348,878	1,000,997
1904	390,988	1,104,410
1905	403,386	1,139,129
1906	470,433	1,286,270
1907	629,333	1,687,473
1908	592,382	1,523,842
1909	764,244	1,961,170
1910	716,259	1,899,021
1911	409,242	1,018,382
1912	509,286	1,316,031
1913	610,358	1,647,277
1914	602,563	1,617,483
1915	400,203	1,035,562
1916	536,342	1,576,481
1917	420,567	1,502,845

IMPORTS AND EXPORTS OF WINE AND BRANDY, 1895-1917.

Wines Imported.

Year	Champagne and other sparkling wines		Still wines in casks		Still wines in bottles		Total value of wines
	Dosen quarts	Value	Gallons	Value	Dosen quarts	Value	
1895	257,757	\$3,807,961	2,789,153	\$1,945,347	296,779	\$1,430,229	\$7,183,537
1896	246,393	3,628,319	2,834,898	1,950,770	314,190	1,527,916	7,107,005
1897	228,628	3,348,004	2,997,952	2,069,250	309,281	1,475,211	6,862,465
1898	223,827	3,264,323	1,930,870	1,392,710	268,921	1,312,147	5,969,180
1899	262,371	3,668,791	2,253,226	1,573,573	274,873	1,347,842	6,590,206
1900	310,149	4,114,908	2,533,828	1,744,736	315,920	1,560,851	7,421,495
1901	311,078	4,589,494	2,785,850	1,942,322	373,832	1,687,420	8,219,236
1902	335,256	4,930,768	3,300,026	2,143,433	397,818	1,846,937	8,921,138
1903	407,944	5,861,639	3,753,211	2,292,297	440,869	2,095,360	10,249,396
1904	336,245	4,969,635	4,007,691	2,387,018	471,153	2,035,217	9,391,870
1905	371,811	5,723,764	3,973,919	2,352,485	488,773	2,165,672	10,241,921
1906	415,394	6,127,062	4,482,499	2,567,712	546,688	2,200,194	10,993,968
1907	419,403	6,228,281	5,213,458	2,966,154	636,938	2,614,346	11,808,781
1908	366,669	5,221,070	5,443,782	3,008,996	628,428	2,516,461	10,746,527
1909	436,628	6,863,785	5,747,056	2,898,232	650,861	2,574,596	12,276,613
1910	391,003	6,302,377	7,100,661	3,527,896	822,243	3,177,020	13,007,293
1911	218,495	3,566,824	4,812,787	2,638,069	596,521	2,326,750	8,531,613
1912	281,134	4,688,090	3,864,071	2,488,744	577,244	2,414,621	9,591,451
1913	280,828	4,636,191	4,417,130	2,718,045	677,111	2,724,471	10,078,707
1914	270,002	4,418,958	5,220,380	2,757,434	728,303	2,940,277	10,116,669
1915	114,630	2,004,680	3,860,273	1,968,587	626,865	2,273,916	6,247,183
1916	206,210	3,532,022	3,455,756	2,267,561	546,119	2,197,311	7,996,894
1917	195,714	3,442,645	3,167,400	2,558,086	534,402	2,485,014	8,485,745

CALIFORNIA STATE BOARD OF AGRICULTURE.

Domestic Wine and Brandy, 1895-1917.

(Exported.)

Year	Casks		Bottled		Total value of wines	Brandy, pr of casks	Value
	Gallons	Value	Dozen bottles	Value			
1895.....	1,125,297	\$545,708	13,919	\$56,202	\$601,910	100,719	\$64,924
1896.....	1,339,090	581,827	17,147	69,460	651,287	89,259	87,294
1897.....	1,389,375	629,270	16,794	69,444	698,714	11,815	12,640
1898.....	1,623,108	682,028	9,672	46,721	728,749	24,886	39,455
1899.....	1,498,078	624,315	10,973	52,015	676,330	20,944	29,289
1900.....	1,408,859	575,665	9,854	49,927	625,592	80,259	83,698
1901.....	1,117,858	461,560	9,901	43,013	504,573	15,323	28,176
1902.....	929,900	407,345	10,952	42,980	450,325	24,077	30,174
1903.....	678,150	290,552	5,232	24,624	315,176	18,117	19,213
1904.....	896,643	403,557	6,066	33,136	436,693	70,193	44,119
1905.....	839,386	355,215	5,800	28,242	383,457	21,171	18,217
1906.....	789,526	326,335	5,596	25,215	351,550	5,145	8,553
1907.....	560,147	251,353	4,404	20,128	271,481	14,172	22,496
1908.....	438,676	195,160	6,273	30,830	225,990	2,750	4,900
1909.....	415,891	181,516	3,839	19,902	201,418	14,718	12,262
1910.....	501,348	193,597	5,962	31,314	224,911		
1911*.....	1,394,994				518,536		
1912.....	957,120				366,260		
1913.....	1,075,151				418,668		
1914.....	941,357				373,412		
1915.....	819,310				332,369		
1916.....	1,133,274				450,598		
1917.....	2,250,037				933,427		

Brandy was included under "Alcohol" prior to 1891, and included in "All other spirits" after 1910.

*Not stated in detail after 1910. The quantity includes wines both in casks and bottles.

Duty on Imported Wines, Etc.

Wine containing more than 24 per cent of alcohol is classed as spirits and charged accordingly. Champagne and sparkling wines \$9.60 per dozen quarts, \$4.80 per dozen pints. Half pints \$2.40 per dozen. Bottles containing more than one quart to pay at the rate of \$3.00 per gallon on the excess. Still wines in casks, if containing 14 per cent or less of alcohol, 45 cents per gallon; above 14 per cent, 60 cents per gallon. In bottles, per case of one dozen quarts, or two dozen pint bottles, \$1.85 per case. Bottles containing more than the above, 6 cents per pint on the excess. Duty on brandy and other spirits, \$2.60 per proof gallon.

Production of Beer.

The amount of beer produced in California during the years 1913-1917 shows a small increase for the last two years.

Year	Number of barrels	Amount of tax paid
1913.....	1,007,326	\$1,007,326
1914.....	973,217	1,063,887
1915.....	937,665	1,408,479
1916.....	1,038,670	1,558,005
1917.....	1,201,179	1,801,769

**Materials Used to Make Alcoholic Liquors in the United States During the Fiscal
Year Ended June 30, 1916.**

(United States Internal Revenue figures.)

Material (bushels)	For fermented liquors ¹	For distilled spirits	Total
Malt -----	52,439,973	4,073,262	56,513,235
Corn -----	² 13,573,521	32,069,542	45,643,063
Rye -----	4	3,116,612	3,116,612
Oats -----	4	9,807	9,807
Wheat -----	4	3,373	3,373
Barley -----	4	148	148
Rice -----	² 2,354,000	4	2,354,000
Other materials -----	72,355	68,822	141,177
Total grain, included above-----	68,439,849	39,341,566	107,781,415
Grape sugar or maltose (pounds)-----	54,934,621	4	54,934,621
Hops (pounds) -----	37,451,610	4	37,451,610
Molasses (gallons) -----	4	152,142,232	152,142,232
Glucose or sirup (gallons)-----	2,742,854	4	2,742,854
Other materials:			
In gallons -----	19,112	4	19,112
In pounds -----	24,756,974	4	24,756,974

¹Totals for materials used for fermented liquors were compiled by the Bureau of Crop Estimates, United States Department of Agriculture, from unpublished records of the Commissioner of Internal Revenue.

²Includes cerealine and grits.

³Rice, reported as 141,249,292 pounds. Estimated roughly as 2,354,000 bushels.

⁴Included, if any, in "Other materials."

PART IX.

IRRIGATION.

Farms and Irrigation; Description of Irrigation Enterprises; Source of Water Supply; Cost of Irrigation; Irrigated Crops, and Orchards; Irrigation Projects; Irrigation Districts; Private Irrigation Systems; Colorado River and Salton Sea; Lake Tahoe; Tulare and Other Lakes; Summary of Agricultural and Irrigated Areas; Irrigation from Underground Waters; California Rivers and Creeks; Acreage of Irrigated Farms by Counties; Main Ditches, Flowing and Pumped Wells.

Farms and Irrigation.

In most sections of California there is usually sufficient rainfall for the maturing of some crops, although there are other sections where no crops can be grown without irrigation. The normal annual precipitation ranges from about 2 inches in the Imperial Valley, in the southeastern part of the state, to about 60 inches along the coast in the northwestern part.

Irrigation is practiced to some extent throughout the state, but the largest part of the irrigated land lies in the southern part of the Sacramento and the San Joaquin valleys and in the northern part of the state.

In 24 of the 58 counties in the state more than half the farms are irrigated. Imperial County has the largest percentage of farms irrigated, 94.6, and Inyo County the next largest, 93.2 per cent. In both 1900 and 1910 the county for which the largest area of irrigated land was reported was Fresno, with an irrigated acreage of 402,318, compared with 283,737 in 1900. In Tulare County 265,404 acres were irrigated in 1910, and in five other counties the area irrigated exceeded 100,000 acres. The summary on pages 219 and 228 shows that in 1910 existing enterprises were ready to supply water to 3,619,378 acres, or 955,274 acres more than were irrigated in 1909. The acreage included in projects exceeded the acreage irrigated in 1909 by 2,826,256 acres, which is more than twice the acreage brought under irrigation in the last decade. This acreage represents the area which will be available for the extension of irrigation in the next few years, upon the completion of projects now under way and without new undertakings.

Description of Enterprises.

Name	Acreage irrigated	Per cent distribution
United States Reclamation Service.....	400	*
United States Indian Service.....	3,490	0.1
Irrigation districts.....	173,793	6.5
Cooperative enterprises.....	779,020	29.2
Commercial enterprises.....	746,265	28.0
Individual and partnership enterprises.....	961,186	36.1
Totals.....	2,664,104	100.0

*Less than one-tenth of one per cent.

United States Reclamation Service enterprises, which operate under the federal law of June 17, 1902, providing for the construction of irrigation works with the receipts from the sale of public lands.

United States Indian Service enterprises, which operate under various acts of Congress providing for the construction by that service of works for the irrigation of land in Indian reservations.

Carey Act enterprises, which operate under the federal law of August 18, 1894, granting to each of the states in the arid region 1,000,000 acres of land on condition that the state provide for its irrigation, and under amendments to that law granting additional areas to Idaho and Wyoming.

Irrigation districts, which are public corporations that operate under state laws providing for their organization and management, and empowering them to issue bonds and levy and collect taxes with the object of obtaining funds for the purchase of construction, and for the operation and maintenance of irrigation works.

Cooperative enterprises, which are controlled by the water users under some organized form of cooperation. The most common form of organization is the stock company, the stock of which is owned by the water users.

Commercial enterprises, which supply water for compensation to parties who own no interest in the works. Persons obtaining water from such enterprises are usually required to pay for the right to receive water, and to pay, in addition, annual charges based in some instances on the acreage irrigated and in others on the quantity of water received.

Individual and partnership enterprises, which belong to individual farmers or to neighboring farmers, who control them without formal organization. It is not always possible to distinguish between partnership and cooperative enterprises, but as the difference is slight this is unimportant.

Irrigation districts, cooperative enterprises and individual and partnership enterprises, which together supply about 72 per cent of the acreage irrigated, are all controlled by the water users. Commercial enterprises, the only other class in the state that irrigates any extensive acreage, supplies 28 per cent.

The United States Reclamation Service operates under the federal law of June 17, 1902, providing for the construction of irrigation works with the receipts from the sale of public lands.*

The United States Indian Service operates under various acts of Congress, providing for the construction by that service of works for the irrigation of land in the Indian reservations.

The Carey Act, or federal law of August 18, 1894, granted to each of the states in the arid region 1,000,000 acres of land on condition that the state provide for its irrigation.

Irrigation districts are public corporations that operate under state laws providing for their organization and management, and empowering them to issue bonds and levy and collect taxes, with the object of obtaining funds for the purchase or construction, and for the operation and maintenance of irrigation works.

*See list of reclamation projects.

Cooperative Enterprises. These are controlled by the water users under some organized form of cooperation. The most common form is a stock company, the stock of which is owned by the water users.

Commercial enterprises supply water to parties who own no interest in the works. Persons obtaining water from such enterprises are usually required to pay for the right to receive water and to pay, in addition, annual charges based in some instances on the acreage irrigated and in others on the quantity of water received.

Individual and partnership enterprises belong to individual farmers or to neighboring farmers, who control them without formal organization. It is not always possible to distinguish between partnership and cooperative enterprises, as the difference is slight.

Source of Water Supply.

As in other states, streams are the principal sources of supply of water for irrigating, but in California wells supply much more land than in any other state. Much land receives water from both sources, but most of this is credited to streams. The watersheds of the principal streams are protected by national forests administered by the United States Forest Service which affords to them effective protection against denudation either by forest fires or the unregulated cutting of their timber.

Source	Acreage irrigated	Per cent distribution
Streams	2,246,722	84.3
Lakes	18,470	0.7
Wells	350,723	13.2
Springs	31,779	1.2
Reservoirs	16,410	0.6
Totals	2,664,104	100.0

The preceding figures show the extent to which underground water is utilized for irrigation in California. The flowing wells, of which there were 2,361, with a total capacity of 477,343 gallons per minute, irrigated 74,128 acres. The great majority of these wells are in southern California and the San Joaquin Valley, and the land thus irrigated is situated in Kern, Kings, Los Angeles, Orange, Riverside, San Bernardino, Santa Clara, and Tulare counties. Of the 10,724 pumped wells, 5,248 were in the counties named and 4,503 in Fresno, Merced, Monterey, Sacramento, San Benito, San Diego, San Joaquin, and Ventura counties. The pumped wells in these two groups of counties irrigated 258,687 of the 276,595 acres irrigated by such wells in the entire state. Pumping from lakes and streams has also been practiced extensively in many sections of the state, 32,539 acres having been irrigated in this way in 1909.

The Cost of Irrigation.

The following summary shows the total cost of irrigation enterprises up to July 1, 1910, including construction of works and acquisition of rights, but not operation and maintenance, with the average cost per acre, based on the acreage the enterprises were capable of irrigating in 1910:

	1900	1910	Increase. per cent
Cost of irrigation enterprises.....	*\$19,181,610 00	\$72,580,080 00	278.3
Average per acre.....	†13 27	20 05	-----
Estimated final cost of existing enterprises.....		84,392,344 00	-----
Average per acre included in projects.....		15 37	-----

*Exclusive of those on Indian reservations.

†Exclusive of 242 acres in Indian reservations.

The cost of irrigation systems shows the largest increase of any item, amounting to 278.3 per cent. In the average cost per acre there was also a considerable increase, compared with 1900. The large increased cost of irrigation enterprises is due in a considerable measure to the expensive equipment installed to secure a water supply and protect it from loss by seepage and evaporation, in sections where water is scarce and crop values are high. A number of large enterprises are under construction upon which considerable expenditures have been made, but which are irrigating little land as yet, making the average cost higher than the true average. The average, based on the estimated final cost and the acreage included in projects, \$15.37 per acre, probably more truly represents the average cost per acre of irrigation in California.

In the county showing the lowest average cost, Mono, where much of the irrigated land consists of flooded pastures, enterprises were capable of irrigating in 1910 at \$1.29 per acre. The highest average cost per acre, \$368.40, is in Nevada County, where the unusual cost is due to the fact that many of the ditches now used for irrigation were originally constructed at heavy expense for mining purposes.

Irrigated Crops.

(From the Reports of the Bureau of the Census, 1910.)

The information relating to irrigated crops is to some extent incomplete; it shows, however, the relative importance of the different irrigated crops, and is sufficiently complete to afford reliable averages of yields and for comparison with totals for the state.

Acreage Yield.

(From the Reports of the Census Bureau.)

Crop	Total for state	Irrigated		Total for state	On irrigated land
		Amount	Per cent of total		
Cereals—				Bushels	Bushels
Corn	51,935	17,802	34.3	1,273,901	491,978
Oats	192,158	5,903	3.1	4,143,688	205,727
Wheat	478,217	22,603	4.7	6,203,206	408,706
Barley	1,195,158	77,785	6.5	26,441,954	1,844,971
Rye	7,027	107	1.5	70,683	1,265
Other grains and seeds—					
Alfalfa seed	8,761	2,570	29.3	23,791	5,911
Dry edible beans	157,987	11,384	7.2	3,328,218	244,624
Dry peas	2,959	290	9.8	57,468	9,902
Hay and forage—				Tons	Tons
Timothy alone	13,725	8,026	58.5	20,001	11,236
Timothy and clover mixed	46,661	20,880	44.7	73,183	34,177
Clover alone	8,519	1,176	13.8	20,380	2,689
Alfalfa	484,134	366,692	75.7	1,639,707	1,280,105
Other tame or cultivated grasses	92,556	6,504	7.0	122,103	10,656
Wild, salt or prairie grasses	253,127	153,672	60.7	281,033	189,964
Grains cut green	1,604,745	101,187	6.3	2,019,526	146,013
Coarse forage	25,868	7,593	29.4	60,611	19,151
Sundry crops—				Bushels	Bushels
Potatoes	67,688	32,735	48.4	9,824,005	5,180,006
Sugar beets	78,671	14,657	18.6	843,269	171,494
Orchard fruits	*	73,491	*		
Small fruits	9,687	6,876	71.0		
Tropical fruits	*	98,969	*		
Nuts	*	22,429	*		
Grapes	*	74,984	*		

*Agricultural returns only give number of trees, not acreage.

Acreage of Irrigated Crops.

Of the entire acreage of the crops in the preceding table, slightly less than one-fifth is irrigated, the proportion irrigated varying widely for the different crops.

The cereals are very generally grown without irrigation, only 6.5 per cent of the total acreage of the cereal crop above given being irrigated. The hay and forage crops are more generally irrigated than the cereals, the irrigated acreage forming 26.3 per cent of the total for these crops, alfalfa being the highest, 75.7 per cent. Of the entire acreage for potatoes 48.4 per cent was irrigated, and that in small fruits 71 per cent.

Sugar beets are grown for the most part without irrigation in California, only 18.6 per cent of the total acreage of the crop being irrigated. While many of the crops irrigated are well distributed geographically, there is a tendency toward the concentration of certain crops in particular localities.

Irrigation Acreage in Orchards.

The following summary gives the counties having the largest acreage of the principal irrigated crops, with the proportions which each contains of the total irrigated acreage of these crops in the state:

Of the orchard fruits irrigated: Fresno County has 31.9 per cent; Placer, 14.8 per cent; Tulare, 8.4 per cent; Santa Clara, 6.5 per cent.

Of small fruits: Los Angeles County, 30.4 per cent; Santa Clara, 13.9 per cent; Sacramento, 10.9 per cent; Santa Cruz, 7.2 per cent.

Tropical fruits: San Bernardino County, 25.6 per cent; Los Angeles, 24.8 per cent; Riverside, 14.2 per cent; Tulare, 11.6 per cent.

Nuts: Orange County, 46 per cent; Los Angeles, 34.7 per cent; Ventura, 12.1 per cent.

Grapes: Fresno County, 62.6 per cent; Tulare, 12.2 per cent; Kings, 6.2 per cent; Sacramento, 5.7 per cent.

Of the total irrigated acreage of fruit trees and vines not bearing in 1909, amounting to 59,031, 36.1 per cent was in Fresno County, 14 per cent in Tulare County, 8 per cent in Orange County, and 7.2 per cent in Los Angeles County.

SUMMARY OF IRRIGATED FARMS AND IRRIGATION ENTERPRISES IN 1900 AND 1910.

(From the Reports of the Census Bureau.)

	1900	1910	Increase	Per cent
Number of farms in state.....	72,542	88,197	15,655	21.6
Number of farms irrigated.....	25,675	39,352	13,677	53.3
Acreage irrigated.....	1,446,114	2,664,104	1,217,990	84.2
Acreage enterprises were capable of irrigating in 1910.....	*	3,619,378	-----	-----
Acreage included in projects.....	*	5,490,360	-----	-----
Percentage of number of farms irrigated.....	35.4	44.6	9.2	-----
Percentage of improved lands in farms irrigated.....	12.1	23.4	11.3	-----
Irrigation enterprises—				
Number of independent enterprises.....	*	13,970	-----	-----
Total length of ditches (miles).....	*	21,129	-----	-----
Number of main ditches.....	*	8,590	-----	-----
Length of main ditches (miles).....	*	12,620	-----	-----
Capacity of cubic feet per second.....	*	89,597	-----	-----
Number of lateral ditches.....	*	6,143	-----	-----
Length of lateral ditches (miles).....	*	8,509	-----	-----
Number of reservoirs.....	*	1,583	-----	-----
Capacity (acre feet).....	*	743,269	-----	-----
Number of flowing wells.....	*	2,361	-----	-----
Capacity, gallons per minute.....	*	477,343	-----	-----
Number of pumped wells.....	*	10,724	-----	-----
Capacity, gallons per minute.....	*	4,119,575	-----	-----
Acreage irrigated with pumped wells.....	*	276,595	-----	-----
Acreage irrigated with flowing wells.....	*	74,128	-----	-----
Acres irrigated with pumped water from all sources, including lakes and streams.....	*	309,134	-----	-----
Number of pumping plants.....	*	9,297	-----	-----
Engine capacity, horsepower.....	*	128,143	-----	-----
Pumping capacity, gallons per minute.....	*	5,276,298	-----	-----
Total cost of irrigation systems.....	\$19,181,610	\$72,580,030	\$53,398,420	278.3
Average cost per acre.....	13.27	20.05	6.78	51.0

*Not reported in 1900.

NOTE.—Reservoirs are those filled by collecting storm water, or from watercourses that are usually dry. When reservoirs are filled from streams or wells the primary source is considered the source of supply. The "acre-foot" is the volume of water required to cover one acre to a depth of one foot or 43,560 cubic feet.

Irrigation in 1910 Compared with the Year 1900.

The increase in irrigation during the last decade has been very large. The total number of farms irrigated was 39,352, against 25,657 in 1900, an increase of 13,677, or 53.3 per cent. The per cent irrigated of the whole number of farms was 44.6, compared with 35.4 per cent in 1900, showing an increase of 9.2 per cent during the ten years.

The total acreage irrigated in 1910 was 2,664,104 acres, against 1,446,114 acres in 1900, an increase of 1,217,990 acres, or 84.2 per cent. The total acreage which all enterprises were capable of irrigating in 1910 was 3,619,378, an excess of 955,274 acres over the area irrigated in 1909. The area included in projects either contemplated or under construction in 1910 was 5,490,360 acres. This indicates in a general way the area which will be available within the next few years for the extension of irrigation, and shows that the area irrigated in 1910 can be more than doubled without the construction of additional works.

The number of independent enterprises in 1910 was 13,970. The total length of all ditches was 21,129 miles, of which there were 8,590 main ditches, extending 12,620 miles, and 6,143 lateral ditches, with 8,509 miles. The length of main ditches in 1900 was 5,106 miles, showing an increase in the ten years of 7,493 miles, or 146.7 per cent.

The number of reservoirs reported was 1,583, having a capacity of 743,269 acre-feet.

The number of wells pumped for irrigation was 10,724, with a capacity of 4,119,575 gallons per minute. The number of pumping plants was 9,297, with an engine capacity of 128,143 horsepower and a pumping capacity of 5,276,298 gallons per minute. The flowing wells numbered 2,361, with a capacity of 477,343 gallons a minute.

The total cost of irrigation systems in 1910 was \$72,580,030, against \$19,181,610 in 1900, an increase of \$53,398,420, or 278.3 per cent.

The average cost per acre was \$20.05 in 1910, against \$13.27 in 1900.

Irrigation Projects in California.

The Orland Project. This project is in the Sacramento Valley and includes about 14,000 acres in Glenn and Tehama counties, principally in the former. In 1916 9,357 acres were irrigated out of 20,533 that were irrigable. The principal crops are alfalfa, pasture, sorghum, small fruits and deciduous fruits, comprising apples, peaches, pears, prunes, and apricots.

Yuma or Laguna Project. This project is principally in Arizona, but will cover about 17,000 acres of the Colorado desert, in Imperial County. The Laguna dam is situated on the Colorado River, about twelve miles above Yuma, and diversions will be made to both sides. The land on the California side is included in the Yuma Indian reservations and all but 4,000 acres, reserved for the Indians, is open to bona fide settlers.

Klamath Project. This covers land in Oregon and California, and is largely a drainage proposition in California, being the reclamation of swamp land surrounding Lower Klamath Lake, and the lowering of the water level in Tule Lake, in Siskiyou and Modoc counties.

Irrigation Projects in the United States.
(Irrigation and crop results on reclamation projects, 1916.¹)

State	Project	Irrigable acreage ²	Irrigated acreage	Cropped acreage ³	Value of crops, total ⁴
Arizona	Salt River	219,691	192,464	173,359	\$8,485,719
Arizona-California	Yuma	72,440	29,483	28,283	1,435,403
California	Orland	20,533	9,357	7,011	342,339
Colorado	Grand Valley	15,000	1,741	1,561	54,692
	Umcompahgre Valley	77,713	49,273	48,352	1,949,529
Idaho	Boise	103,370	76,922	72,581	2,327,494
	Minidoka	120,800	88,333	81,362	2,800,431
Montana	Huntley	32,905	18,635	18,581	489,071
	Milk River	40,358	5,518	4,592	70,016
	Sun River	16,321	4,717	4,700	86,950
Montana-No. Dakota	Lower Yellowstone	42,288	6,020	6,020	124,586
Nebraska-Wyoming	North Platte	112,016	75,620	74,766	1,633,390
Nevada	Truckee-Carson	69,100	39,449	38,249	791,446
New Mexico	Carlsbad	24,775	16,600	14,500	399,901
	Hondo	2,918	1,324	1,219	32,200
New Mexico-Texas	Rio Grande	85,000	62,513	61,818	2,893,740
Oregon	Umatilla	17,000	5,477	3,900	139,800
Oregon-California	Klamath	45,272	29,351	29,351	509,865
South Dakota	Belle Fourche	78,567	48,468	46,909	557,319
Utah	Strawberry Valley	50,000	30,722	25,066	1,320,135
Washington	Okanogan	10,099	7,850	5,242	328,385
	Yakima:				
	Sunnyside Unit ⁵	93,226	73,000	59,449	4,341,940
	Tieton Unit	34,000	23,000	21,000	1,102,536
Wyoming	Shoshone	42,623	29,977	28,695	600,903
Totals for irrigated areas covered by crop reports		1,426,015	925,814	856,566	\$32,767,720
Additional project areas irrigated but not covered by crop reports:					
Idaho	Boise ⁷	120,496	24,518		
Colorado	Umcompahgre Valley ⁸	22,287	5,000		
Nebraska-Wyoming	North Platte ⁹	17,840	8,588		
New Mexico-Texas	Rio Grande ¹⁰	17,000	10,000		
Total reclamation projects		1,603,638	978,920		

¹Limited to project areas, excluding outlying areas (private canals) to which water is furnished under the Warren Act. Data are for calendar year (irrigation season) except on Salt River project data are for corresponding "agricultural year," October, 1915, to November, 1916.

²Area Reclamation Service was prepared to supply water.

³Irrigated crops. Excludes small areas on few projects cropped by dry farming.

⁴Irrigable area includes so-called "dry lands" given right to rent water temporarily on account of full reservoir. Irrigated acreage includes total of towns contracting for water; farm area irrigated, 187,905 acres.

⁵Estimated. Crop reports covered 158 irrigated farms with 6,425 acres cropped, part without irrigation, yielding crops valued at \$118,990, or \$18.52 per acre.

⁶Includes irrigation districts.

⁷Nampa-Meridian and Pioneer Irrigation districts; New York canal lands; 42 project farms; townsites, camps, etc. Irrigated area of districts unknown and not included; considerable water was delivered to them under Warren Act.

⁸Private canals supplied Gunnison water. Irrigated acreage estimated roughly.

⁹North Platte Canal and Colonization Company lands. In addition considerable water was delivered to private canals under Warren Act.

¹⁰Private canals sold stored water; areas estimated.

**Receipts from the Sale of Public Lands in California for Irrigation Work to
June 30, 1916-1917.**

	Fiscal year 1916	Total value to June 30, 1916	Fiscal year 1917	Total value to June 30, 1917
Receipts from sale of land	\$181,157 29	\$5,953,831 91	\$249,959 09	\$6,203,791 00
Allotments to June 30	252,631 53	3,516,874 51	204,095 00	3,613,634 86
Net investments to June 30	191,415 37	2,979,219 89	103,545 98	3,082,765 86

This statement shows the amount of money allotted to each project, the amount of money expended on each project to June 30, 1917, and the amount of money allotted to states and expended in the respective states for the same period:

Statement of Project Allotments and Net Investments in California, June 30, 1917.

Project	Allotments		Net investment	
	Fiscal year 1917	To June 30, 1917	Fiscal year 1917	To June 30, 1917
California:				
Yuma	\$97,665 00	\$1,638,851 00	\$64,564 85	\$1,448,237 33
Orland	50,100 00	1,039,800 00	6,036 60	875,513 14
Klamath	45,475 00	800,800 00	23,984 31	643,739 16
Colorado River		7,430 70		7,430 70
Colorado River Basin..	5,355 00	23,924 95	5,018 78	20,382 55
Iron Canyon		19,185 96		9,779 46
Pit River		2,530 25	10 00	2,499 18
Shasta County		3,346 65	3 76	2,144 75
Lassen County		5,299 15		1,945 60
Owens Valley		12,061 92		12,061 52
Sacramento Valley		43,620 72		43,620 72
San Joaquin		3,531 20		3,531 20
Imperial Valley	4,000 00	4,000 00	2,769 98	2,769 98
Kings River Storage....	1,500 00	1,500 00	1,157 70	1,157 70
Preliminary investigations		7,952 48		7,952 48
Totals	\$204,095 00	\$3,613,634 98	\$103,545 98	\$3,082,765 86

Crop Report, Yuma Project, Arizona-California, Year of 1916.

Crop	Area, acres	Unit of yield	Yields		Values		
			Total	Average per acre	Per unit of yield	Total	Per acre
Alfalfa hay	10 880	Ton	28,029	2.58	\$9.52	\$265,898	\$24 53
Alfalfa seed	8,100	Bushel	43,980	5.42	7.48	328,725	40 58
Barley	1,195	Bushel	28,086	23.50	.69	19,433	16 26
Beans	234	Bushel	2,428	10.37	4.20	10,215	43 65
Indian corn	55	Bushel	1,875	34.00	.72	1,345	24 45
Corn sorghum	4,897	Bushel	195,799	39.97	.61	124,915	25 50
Cane and cane fodder....	1,832	Ton	5,902	3.22	3.27	19,289	15 29
Cotton	4,670	Pound	2,289,430	490	.174	397,420	85 10
Cotton seed	4,670	Pound	4,582,610	981	.015	70,277	15 05
Fruit	89					4,440	49 88
Truck	338					25,038	74 08
Hay, except alfalfa.....	901	Ton	1,075	1.20	9.66	10,383	11 52
Pasture	7,282					82,648	11 35
Wheat	456	Bushel	7,220	15.84	1.39	10,032	22 00
Estimated additional revenue derived from pasturing alfalfa and stalk lands and feeding alfalfa straw after threshing, Less duplicated areas.....	17,316					64,350	
Total cropped acreage.....	28,283	Total and average.....				\$1,435,403	\$50 75

Crop Report, Yuma Project, Arizona-California, Year of 1916—Continued.

	Acres	Areas	Acres	Farms
Irrigated, no crops:		Total irrigable area farms reported.....	41,841	790
New land and non-bearing orchard	1,200	Total irrigated area farms reported.....	29,483	790
		Under water right applications.....	6,170	272
		Under rental contracts.....	23,313	518
Total irrigated acreage.....	29,483	Total cropped area farms reported.....	28,283	790

Crop Report, Orland Project, California, Year of 1916.

Crop	Area, acres	Unit of yield	Yields			Values	
			Total	Average per acre	Per unit of yield	Total	Per acre
Alfalfa hay	5,344	Tons	29,058	5.4	\$7.57	\$219,906	\$41 15
Other hay	179	Tons	214	1.2	12.04	2,578	14 40
Pasture	3,185					23,628	8 36
Corn sorghum	848	Bushels	25,370	30	1.00	25,368	29 91
Fruit, citrus	121	Pounds	408,180	3,373	0.025	10,204	84 33
Fruit, deciduous ¹	76	Pounds	240,000	3,158	0.015	3,600	47 37
Fruit, small	11	Pounds				650	59 09
Prunes, dried	40	Pounds	80,000	2,000	0.05	4,000	100 00
Almonds	190	Pounds	98,933	618	0.165	16,324	102 02
Garden	224					22,288	99 50
Nursery	27					10,800	400 00
Less duplicated areas	3,204						
Total cropped acreage.....	7,011	Total and average.....				\$342,339	\$48 83

	Acres.	Areas	Acres	Farms	Per cent of project ¹
Irrigated, no crop:		Total irrigable area farms reported.....	10,954	384	54.2
Nonbearing orchards	1,343	Total irrigated area farms reported.....	9,357	384	46.3
Young alfalfa	618	Under rental contracts.....	9,197	382	45.5
Miscellaneous	385	Vested rights	160	2	.8
Total irrigated acreage.....	9,357	Total cropped area farms reported.....	7,011	384	34.7

¹For further details see Bulletin No. 2, State Department of Engineering, Irrigation Districts in California, 1887-1916, by Frank Adams, Irrigation Manager, U. S. Department of Agriculture.

²Small mixed orchards of apricots, peaches, apples, etc.

Irrigation Districts, 1887-1916.

The Wright Act of 1887. Briefly stated this act sought to confer on farming communities powers of municipalities in the purchase or construction and the operation of irrigation works. These powers included the right of eminent domain, the right to issue bonds against all of the real property within any area organized into an irrigation district, and the right to tax that property for the payment of the cost of any irrigation works acquired or built, and of their operation.

Organization of irrigation districts followed quite rapidly after the passage of the Wright Act, which was approved March 7, 1887 (the act was revised in 1897), and before the end of that year, Turlock, Modesto, Orland and Central districts had been formed in the order named. Seven organized in 1888, including Browns Valley, Madera, Alta and

Poso; six in 1889, including Tulare, Anaheim, and Escondido; eleven in 1890, including Selma, Rialto and Perris; thirteen in 1891, including Sunset, Tipton, Linda Vista and Otay, and in 1895 they numbered forty-nine. Many of these for various reasons turned out failures. Only eight districts of the forty-nine are now operating.*

Up to July 1, 1915, fifty-seven irrigation districts have been organized in California since the passage of the Wright Act in 1887, nine of which were formed since the passage of the rewritten act of 1897. Out of these fifty-seven there are seventeen still in existence and twelve are operating. The other five are in various stages of reorganization. Since the organization of the Water Commission the state has witnessed the formation of many new districts and the initiation of a number more, it being only a matter of the necessary time required to complete the latter before they will take their place in the list of regularly organized districts.*

The Seventeen Old Districts.

The following is a list of the old districts still in existence which were formed under the original Wright Act or its successor:

District	County	Area in acres
Anderson-Cottonwood	Shasta and Tehama	25,000
Brown's Valley	Yuba	45,000
Oakdale	Stanislaus	75,000
South San Joaquin	San Joaquin	70,000
Waterford	Stanislaus	13,000
Modesto	Stanislaus	52,000
Turlock	Stanislaus	175,500
Alta	Fresno and Tulare	130,000
Tulare	Tulare	35,000
Alpaugh	Tulare	2,500
Little Rock Creek	Los Angeles	4,200
Big Rock Creek	Los Angeles	700
Black Rock	Inyo	1,750
Walnut	Los Angeles	850
La Mesa, Lemon Grove, and Spring Valley	San Diego	14,750
San Ysidro	San Diego	475
Imperial	Imperial	524,000

Private Irrigation Systems.†

The following are a few of the most important of the very large number of private systems in various parts of the state:

California Development Company. This company diverts water from the west bank of the Colorado River close to the Mexican border. Its main canal passes through a portion of the Mexican territory of Lower California, where about 100,000 acres are served. It enters the state again at about sea level, and covers about 400,000 acres, mostly below sea level, in the Imperial Valley, of which upward of 225,000 acres are irrigated. The company does not own any of the land, most of which has been taken up under the Desert Land Act.

San Diego Flume Company. This system, which is typical of the coast region of southern California, irrigates about 7,000 acres to the north and east of the city of San Diego from the San Diego River and the storage reservoirs.

*Those who are interested in irrigation projects should obtain a copy of the California Irrigation Act, Chapter 846, approved May 28, 1917.

†Report of the State Water Commission of California, 1916.

Riverside Water Company and Gage Canal Company. These two systems serve the valuable lands between the south bank of the Santa Ana River and the hills from the section east of Colton, through the Riverside district, in San Bernardino and Riverside counties, but are in no way connected with each other. The value of the entire system, which includes the municipal supply of Riverside, is estimated at \$2,500,000, the irrigating portion alone being valued at nearly \$1,000,000.

The Gage Canal Company diverts water from the Santa Ana River; its flow is largely augmented during the summer by numerous artesian wells and pumping plants.

Kern County Land Company. The Kern County Land Company is interested in numerous canal projects and corporations, taking water from both sides of Kern River, irrigating lands in what is called the Kern delta, lying south, west, and southwest of Bakersfield. Of these lands there are about 80,000 acres in alfalfa, 12,000 acres in grain, 10,000 acres in pasture, wild grass, and 15,124 acres in orchards, vines, gardens, etc.

Kern Valley Irrigation Company. The Kern Valley Water Company's canal, belonging to Miller & Lux, irrigates the riparian lands lying between Buena Vista Lake and Tulare Lake. About 63,000 acres of this land are in cultivation, mostly in alfalfa.

Fresno and Consolidated Canals Company. These two systems, although kept separate, are operated by the same people and cover practically all the irrigated lands in Fresno County, amounting to about 360,000 acres. The points of diversion for the various canals are all along the west bank of the Kings River, close to where it enters the valley.

The Consolidated includes the Fowler Switch and the Centerville and Kingsburg canals, as well as a majority of the stock of the Emigrant canal. The latter is on the lower Kings River, and diverts water from the river six miles west to Kingsburg to irrigate lands on the Laguna de Tache Rancho, which belongs largely to this company.

The Consolidated has later priorities on the river, and its flow is cut off from the middle of June to August 1, so that its rights are not so valuable as the Fresno canal rights. An annual charge is made for the maintenance of the main canals, amounting to 62½ cents per acre under the Fresno and 75 cents per acre under the Consolidated. The lateral ditches are owned and controlled by the irrigators. No measurements are made to users, each irrigator taking what he needs in accordance with the rights held by him. Considering its area, it is the most highly developed district in the state.

The San Joaquin and Kings River Canal and Irrigation Company. This system diverts water from the west bank of the San Joaquin River about 1½ miles north of the town of Mendota, in Fresno County. It is the oldest large canal in the valley, having been organized in February, 1871. The area tributary to it extends for seventy miles along the west bank of the river, in Fresno, Merced, and Stanislaus counties. The company belongs to Miller & Lux, who have riparian rights on the river, and their own lands are very largely included.

The Crocker-Huffman Land and Water Company. The Merced River furnishes the supply for the 220,000 acres irrigable from its canals. These lands extend from the foothills, near where the river enters the valley, to the country surrounding the city of Merced and between that city and Livingston.

The Butte County and the Sutter County Canals. These two canals are controlled by the same people, using the same main canal, but are separately incorporated. The Butte canal serves the area in Butte County and the Sutter canal serves that in Sutter County. This combined system covers about 80,000 acres, 30,000 in Butte and 50,000 in Sutter County, composed of lands between the Feather River, the Marysville Buttes, and the swamp lands along the Sacramento River south to where the slough which leaves the Feather River near Marysville joins the Sutter basin.

Sacramento Valley Irrigation Company. This is a recent enterprise, backed by large Eastern financial interests, which have secured the rights of the Central Irrigation District by the purchase of all outstanding district bonds for 35 per cent of their par value. They have secured control, also, of 100,000 acres in the above district, and are carrying on extensive work in preparing for the irrigation and drainage of the 225,000 acres which will be included in their system.*

Private Irrigation Enterprises Since the Formation of the Water Commission.

The preceding paragraphs give some of the largest of the private irrigation systems in operation before the commission came into existence. Since that time, several private individuals or concerns have applied to the commission for permits to appropriate water. These are not irrigation districts in the legal sense of the term, but are enterprises by which it is proposed to water large private holdings, or sell water to consumers or both. As in all other cases, the commission can not foretell how many of them will be carried to actual completion. They are about twenty-four in number.

Imperial Valley and the Salton Sea.

The Colorado River is the division line between California and Arizona. It empties into the Gulf of California about sixty miles below Yuma, Arizona. The Colorado has been called the Nile of America, as it is subject to a large rise annually. Its waters have turned the desert lands of Imperial Valley into fertile lands, and more will be reclaimed by the Yuma project of the United States Reclamation Service.

The Salton Sea, or sink, originally formed a part of the Colorado desert, which comprises an area of nearly 2,000 square miles. The desert comprises two fertile valleys, one in Riverside County, known as the Coachella Valley, the other as Imperial Valley, in Imperial County. Salton Sea, which partly fills the sink, lies between the two valleys. On December 31, 1908, its surface was 206 feet below mean sea level, and was nearly 45 miles long and from 9 to 15 miles wide, its maximum depth 67 feet and its area about 443 square miles.

In 1891 the Colorado overflowed into Salton Sink; in 1905 the flood into the sink was repeated on a much larger scale. The old channel of the Alamo River was transformed into a deep, wide gorge, and

*See "Irrigation in California," by F. W. Roeding, United States Department of Agriculture. See also the Report of the State Water Commission of California, 1917.

another channel, now called New River, was formed. Practically all the water received by Salton Sea enters through Alamo and New rivers, but chiefly through the former. These rivers run through Imperial Valley and are drainage channels for waste water from irrigation systems and power plants.

Lakes.

There are several good sized lakes in the northeastern part of the state, namely, Lower Klamath Lake, near Brownell, which has an area of about 21,000 acres; Tule, Clear, Goose, and Upper, Middle and Lower Alkali lakes. All of these are shallow and more or less alkaline. Farther south there are the Eagle and Honey lakes, the water of the latter sweet, and the former rather alkaline.

South of these is Lake Tahoe, at an elevation of 6,000 feet, with a surface area of about 250 square miles, partly in California and partly in Nevada. It has an average depth of about 1,000 feet, and is the source of the Truckee River.

Mono and Owens lakes, like many others, have no outlet, and are strongly alkaline.

Tulare Lake is a shallow body of water, about thirty miles south of Fresno and forty miles northwest of Bakersfield. In 1852-1854 the area was nearly 1,000 square miles, the lake being full, and about 35 feet deep. The flood of 1867 was the last to fill the lake to overflowing and about 1870 it began to recede, until in 1898 the lake bed became practically dry, brought about by the water being diverted for irrigation and light precipitation for a number of years. After partly refilling in 1901 it became completely dry in 1905, and in the early spring of 1906 was entirely under cultivation. On March 15, 1906, the first water reached the lake bed at the mouth of the Kings River and spread over a large area. A few days later water from Kaweah and Tule rivers reached the lake. On June 1 the water was 7 feet deep and covered about 200 square miles. On June 23 overflow water from Kern basin cut through the sand ridge to the south and flowed into the lake. On August 4 the water reached its greatest height for the year 1906, and the lake had an area of about 300 square miles and a maximum depth of 12.7 feet. The total rise of the lake that year was 10.8 feet. In November, 1907, the lake had an area of about 274 square miles, a depth of about 12.4 feet, and an average length of 20 miles, and a width of 13.5 miles. The lake reached its greatest height in July of 1907, when it had maximum depth in the summer of nearly 14 feet. Since then it has been subsiding, and is about 11 feet deep. It is probable that the lake will continue to fluctuate very much as in the past, but whether it is to fill and subside alternately are questions of great importance.

The sudden reappearance of the lake resulted in the loss of millions of dollars, but permanent reclamation is ultimately hoped for.*

Buena Vista Lake is the outlet of Kern River, and is connected with Tulare Lake by sloughs.

Clear Lake, in Lake County, is the only natural body of sweet water in the Coast Range worthy of consideration. It has a surface area of 64 square miles, and is the source of Cache Creek, which enters the Sacramento River near Woodland.

*For further valuable details, see Water Supply Paper, Part XI, by W. R. Clapp and F. F. Henshaw, United States Geological Survey.

IRRIGATION RESOURCES OF CALIFORNIA.

(Compiled from the Report of the Conservation Commission of California, 1912.)

Summary of Agricultural and Irrigated Areas in Northern California.*

Division	Valley agricultural land, acres	Valley plains, acres	Foothill agricultural land, acres	Areas irrigated, acres
Northern coastal counties	503,000			2,290
North central mountain valleys	435,000			99,910
Northeastern plateaus and valleys	867,000			161,850
Feather River valleys	158,000			50,600
Sierra foothills			789,000	45,250
Sacramento Valley	2,659,000	790,000		123,800
Totals	4,622,000	790,000	789,000	483,700

*For further valuable details, see Water Supply Paper, Part XI, by W. B. Clapp and F. F. Henshaw, United States Geological Survey.

Summary of Agricultural and Irrigated Areas in Central California.

Division	Valley agricultural land, acres	Valley plains, acres	Foothill agricultural land, acres	Areas irrigated, acres
Coastal valleys	887,000			87,000
San Joaquin Valley	6,530,000	1,046,000		1,728,975
Sierra foothills above San Joaquin Valley			730,000	10,620
Lands east of the Sierra Nevada	472,000			137,760
Totals	7,889,000	1,046,000	730,000	1,959,355

Summary of Agricultural, Irrigated, and Estimated Irrigable Lands in Southern California.

Area	Agricultural land, acres	Irrigated land, acres	Estimated area that ultimately will be irrigated, acres
Santa Barbara and Ventura counties	509,250	49,656	322,500
Los Angeles and San Gabriel River lands	441,986	167,454	381,500
Santa Ana River lands	876,671	213,407	279,000
San Diego County	363,668	19,880	87,100
Colorado Desert and River valleys	1,550,750	279,600	766,500
Mojave Desert	2,328,000	15,489	113,000
Totals	6,070,325	745,486	1,949,800

NOTE.—For a full description of irrigated areas in the state and of land that it is possible to irrigate, see Report of the Conservation Commission of California, 1912, which contains a large number of valuable maps; also "Irrigation Resources of California and Their Utilization," by Frank Adams, irrigation manager in charge of work in California. Experiment Station Bulletin 254.

Summary of Areas Irrigated, 1909-1911, Revised to 1912.

Division	Agricultural areas in irrigation zones, acres	Areas irrigated, acres	Total areas it is estimated may ultimately be irrigated, acres	Approximate per cent of total estimated as ultimately irrigable
Northern California	6,200,200	487,805	3,450,000	56
Central California	9,665,000	1,959,355	4,300,000	44
Southern California	6,000,000	745,486	1,949,600	33
Totals	21,865,200	3,192,646	9,699,600	44

**Drainage Area in Square Miles, Annual Flow in Cubic Feet of Rivers and Creeks in
Sacramento Valley, 1875-1910.**

Streams and point of measurement	Number of years	Drainage area, square miles	Mean flow, cubic feet per second	Total mean annual run-off, acre feet
Sacramento River, Red Bluff.....	16	9,300	14,300	10,400,000
Sacramento River, Collinsville.....	7	26,200	35,900	26,000,000
Stony Creek, Fruto.....	10	600	802	581,000
Feather River, Oroville.....	9	3,640	8,320	6,020,000
Yuba River, near Smartsville.....	7	1,220	4,440	3,220,000
Bear River, Van Trent.....	6	263	574	416,000
Cache Creek, Yolo.....	8	1,230	960	696,000
Putah Creek, Winters.....	5	805	712	515,000
American River, Fair Oaks.....	6	1,910	5,060	3,660,000
Cosumnes River, Michigan Bar.....	8	524	571	404,000

**Drainage Area in Square Miles, Mean and Annual Flow in San Joaquin Valley.*
Rivers, creeks, and measurement at edge of foothills***

San Joaquin River, and north:				
Mokelumne River.....	12	657	1,380	1,000,000
Calaveras River.....	6	491	520	377,000
Stanislaus River.....	18	1,051	1,930	1,400,000
Tuolumne River.....	21	1,635	2,870	2,080,000
Merced River.....	15	1,090	1,700	1,228,000
Bear Creek.....	6	166	65	47,000
Mariposa Creek.....	6	122	46	33,000
Chowchilla River.....	6	268	152	110,000
Fresno River.....	6	272	167	121,000
Upper San Joaquin River.....	16	1,640	2,850	2,060,000
Totals.....	11	7,392	11,680	8,456,000
South of San Joaquin River:				
Kings.....	23	1,740	2,647	1,920,000
Kaweah River.....	13	520	786	533,000
Tule River.....	9	266	204	148,000
Kern River.....	22	2,345	1,063	770,000
Callente Creek.....	6	423	191	138,000
Poso Creek.....	6	289	128	92,000
White Creek.....	6	90	40	29,000
Deer Creek.....	6	110	49	35,000
Totals.....	11	5,738	5,058	3,665,000
Grand totals.....	11	13,175	16,738	12,121,000

*From records of California Engineering Department.

**Irrigation from Underground Waters in the Central Coast Valleys and the
San Joaquin Valley.
Central Coast Valleys in 1909.**

Counties	Area irri- gated from pumped wells, acres	Area irri- gated from flowing wells, acres
Alameda.....	1,125	
Contra Costa.....	68	
Monterey.....	4,428	
San Benito.....	1,812	847
San Francisco.....	383	
San Luis Obispo.....	109	18
San Mateo.....	1,057	
Santa Clara.....	15,947	7,415
Santa Cruz.....	247	2
Totals.....	25,176	8,282

San Joaquin Valley in 1909 and 1912.

Counties	Area irrigated by pumping plants, 1909, acres*	Area irrigated from flowing wells, 1909, acres*	Total irrigated from ground waters, 1909, acres*	Area reported irrigated in 1912, acres†
Fresno	21,729		21,729	27,620
Kern	4,290	2,097	6,387	12,240
Kings	1,042	11,400	12,442	30,780
Madera	1,663		1,663	9,300
Merced	2,002	262	2,264	4,680
San Joaquin	8,642		8,642	11,380
Stanislaus	5		5	440
Tulare	31,286	6,556	37,942	75,320
Totals	70,659	20,415	91,074	171,760

*From the Census Reports in 1909. †California Conservation Commission.

NOTE.—The increase for the three years, 1909–1912, in the San Joaquin Valley, has averaged 30 per cent per year.

CALIFORNIA RIVERS AND CREEKS IN 1911.

(Compiled from the Reports of the U. S. Geological Survey.)

Rivers or creeks, and canals	Drainage area, square miles	Drainage in second- feet		Total run-off	
		Maximum	Minimum	Depth in inches on drainage area	Total in acre-feet
<i>Southern Pacific Ocean Drainage Basins.</i>					
Tia Juana River Basin—					
Cottonwood Creek (and conduit), near Jamul	270	97	.0	-----	4,860
Sweetwater River, near Descanso...	40	182	.0	2.57	5,490
San Diego River Basin—					
San Diego River (and flume) at Lakeside	208	660	.0	1.31	14,400
San Dieguito River Basin—					
Santa Ysabel Creek, near Escondido	128	-----	-----	-----	3,410
San Luis Rey River, near Pala.....	318	-----	-----	-----	31,000
Santa Ana River Basin—					
Santa Ana River, near Mentone and Pacific Light and Power Canal...	182	1,900	39	9.91	96,500
San Gabriel River and canal, near Azusa	222	9,160	32	23.33	276,000
Los Angeles River Basin--					
Arroyo Seco, near Pasadena.....	16.4	-----	-----	-----	3,250
Santa Ynez River Basin—					
Santa Ynez River, near Santa Bar- bara	207	-----	-----	-----	51,500
Santa Ynez River, near Lompoc...	725	20,400	30	13.86	537,000
Salinas River Basin—					
Arroyo Seco, near Soledad.....	215	13,300	11	25.51	292,000
<i>San Francisco Bay Drainage Basins.</i>					
San Joaquin River Basin—					
San Joaquin River, near Friant (formerly Pollasky)	1,640	38,800	297	40.81	3,570,000
Kern River (and power canal) at Isabella	1,220	5,750	245	13.02	846,000
Kern River near Bakersfield.....	2,345	4,623	281	8.10	1,010,000
Tule River, near Porterville.....	266	2,780	14	8.58	122,000
Kaweah River, near Three Rivers...	520	6,610	62	19.69	546,000
Kings River, near Sanger.....	1,740	20,500	270	30.58	2,840,000
Merced River, near Merced Falls...	1,090	37,200	100	36.32	2,110,000

California Rivers and Creeks—Continued.

Rivers or creeks, and canals	Drainage area, square miles	Drainage in second-feet		Total run-off	
		Maximum	Minimum	Depth in inches on drainage area	Total in acre-feet
<i>San Francisco Bay Drainage Basins</i> —Continued.					
Tuolumne River, near Lagrange (and three canals).....	1,500	52,600	16	-----	3,380,000
Modesto Canal, near Lagrange.....	-----	618	.0	-----	184,000
Turlock Canal, near Lagrange.....	-----	1,030	.0	-----	302,000
Lagrange Water and Power Co.'s canal, near Lagrange.....	-----	66	.0	-----	43,400
Stanislaus River, Stanislaus Water Co.'s canal and shell ditch at Knights Ferry	935	36,900	182	46.58	2,320,000
Mokelumne River, near Clements.....	642	16,700	75	44.29	1,520,000
Cosumnes River at Michigan Bar.....	524	22,400	24	31.24	874,000
Sacramento River Basin—					
Sacramento River at Antler.....	461	14,000	245	39.84	979,000
Sacramento River, near Red Bluff (including Goose Lake Basin).....	10,400	130,000	5,110	17.27	9,580,000
Pit River, near Ydallpom (includes Goose Lake drainage basin, 1,090 square miles)	6,350	20,600	3,080	11.91	4,040,000
McCloud River at Baird.....	665	12,600	1,240	46.45	1,650,000
North Fork of Cottonwood Creek at Ono	52	2,460	5	33.21	92,100
Stony Creek, near Fruto.....	601	15,400	15	16.20	519,000
Little Stony Creek, near Lodoga.....	102	4,960	2	17.41	94,800
Feather River at Oroville.....	3,640	75,400	1,060	25.27	6,850,000
Yuba River, near Smartsville.....	1,220	39,000	410	53.09	3,460,000
North Fork of Yuba River at Good-year Bar	214	4,570	120	63.74	727,000
North Fork of North Fork of Yuba River at Downleville.....	71.2	2,290	42	71.10	270,000
Rock Creek at Goodyear Bar.....	10.8	545	.5	59.40	34,200
Goodyear Creek at Goodyear Bar.....	12.2	1,180	3	106.95	69,600
Bear River at Van Trent.....	263	22,200	23	36.43	510,000
American River at Fair Oaks.....	1,910	69,100	-----	53.01	5,400,000
Rubicon River, near Quintette.....	198	3,000	5	37.66	398,000
Little South Fork of Rubicon River at mouth, near Quintette (1909-1911)	57.8	616	2	33.72	104,000
Cache Creek at Lower Lake.....	500	1,410	3	9.47	252,000
Cache Creek at Yolo.....	1,230	18,400	.0	7.573	496,000

*Northern Pacific Ocean Drainage Basins.**

*This includes the Russian River basin, Mattole Creek basin, Eel River basin, Yager Creek, Van Duzen River, Mad River basin, and Redwood Creek basin, but the records available are not sufficient to enable these details to be given.

In addition to these there are a large number of other rivers and streams, the details of which are not so complete as the above. See Water Supply Paper 311, U. S. Geological Survey, 1912, and Water Supply Paper 300, 1913.

NOTE.—There are four drainage areas in California: The South Pacific Coast area—Tia Juana River, Sweetwater River, San Diego River, San Diegoito River, San Luis Rey River, Santa Ana River, San Gabriel River, Malibu Creek, Santa Ynez River, Santa Maria River, Salinas River; North Pacific Coast area—Russian River, Eel River, Mad River, Klamath River (includes Trinity and Scott rivers); Big Basin area—Susan River, Willow Creek, Truckee River, Owens River; Great Valley area—Sacramento Valley, San Joaquin Valley, San Joaquin River basin, Tulare Lake basin, Kern River basin.

TABLE XXXIX.

Irrigated Farms—Acreage and Cost, 1910.

(Compiled from the Reports of the Bureau of the Census.)

Counties	Number of farms irrigated	Acreage irrigated	Acreage capable of irrigation, 1910	Acreage capable of irrigation in projects	Cost of enterprises to July 1, 1910	Average cost per acre capable irrigation, 1910
Alameda	50	1,859	1,872	2,605	\$57,156	\$30 53
Alpine	32	3,349	3,399	3,435	7,493	2 20
Amador	73	826	3,973	4,139	265,608	66 85
Butte	556	28,754	115,075	233,500	1,231,894	10 71
Calaveras	154	1,275	3,161	3,919	121,033	38 29
Colusa	112	4,276	16,541	18,783	76,112	4 60
Contra Costa	78	26,856	32,562	32,640	90,503	2 78
Del Norte						
El Dorado	244	5,122	5,501	20,264	346,939	63 07
Fresno	5,310	402,318	560,326	633,652	1,898,460	3 39
Glenn	196	5,661	16,804	220,664	1,519,561	90 43
Humboldt	33	208	333	966	29,027	87 17
Imperial	1,250	190,711	242,000	375,000	4,955,272	20 48
Inyo	408	65,163	71,815	92,319	962,698	13 41
Kern	876	190,034	217,418	402,806	1,788,635	8 23
Kings	1,126	190,949	289,523	310,523	687,381	2 37
Lake	43	582	828	1,288	12,124	14 64
Lassen	355	77,079	89,815	149,530	884,965	9 85
Los Angeles	4,669	145,586	183,506	241,794	7,817,023	42 60
Madera	158	38,705	51,230	82,321	512,098	10 00
Marin	6	67	71	71	3,380	47 61
Mariposa	56	376	546	767	13,440	24 62
Mendocino	39	371	590	1,365	30,297	51 35
Merced	1,417	151,998	248,670	281,719	3,748,211	15 07
Modoc	437	82,075	89,476	124,166	301,040	3 56
Mono	76	49,027	50,007	84,973	64,282	1 29
Monterey	258	15,056	27,176	29,914	495,916	18 25
Napa	36	1,191	2,035	2,443	53,948	26 51
Nevada	300	3,839	4,259	5,267	1,569,028	568 40
Orange	2,215	55,056	63,486	71,444	1,948,246	30 69
Placer	618	16,845	23,365	61,751	2,798,740	119 78
Plumas	151	36,602	37,529	37,901	107,118	2 85
Riverside	2,174	71,436	103,233	210,452	5,648,469	54 72
Sacramento	1,053	53,683	69,970	74,588	1,452,471	20 76
San Benito	240	7,186	13,790	20,067	177,924	12 90
San Bernardino	2,463	70,278	86,107	152,415	9,416,960	109 36
San Diego	890	24,944	31,205	45,535	3,753,127	120 27
San Francisco	25	363	383	383	21,975	57 38
San Joaquin	1,432	59,811	77,063	173,563	1,689,720	21 92
San Luis Obispo	91	1,687	2,416	2,539	32,311	13 37
San Mateo	75	3,648	3,653	3,983	90,921	24 89
Santa Barbara	137	12,012	13,572	13,603	307,186	27 28
Santa Clara	1,101	37,637	50,939	60,140	1,337,216	26 25
Santa Cruz	106	1,201	1,313	2,232	76,621	58 36
Shasta	639	33,004	36,564	72,653	430,766	11 78
Sierra	94	17,504	17,505	18,249	69,650	3 98
Siskiyou	636	60,301	66,866	79,161	370,627	5 54
Solano	150	3,610	7,160	8,192	135,532	18 93
Sonoma	38	631	761	951	13,801	18 14
Stanislaus	1,911	84,015	141,785	340,914	4,051,870	28 58
Sutter	39	1,173	1,361	1,959	18,800	13 81
Tehama	366	14,281	23,167	36,020	263,055	11 35
Trinity	201	6,324	7,127	9,513	173,414	24 33
Tulare	3,048	265,404	337,938	466,735	5,634,379	16 67
Tuolumne	157	2,035	2,083	5,958	180,474	84 64
Ventura	489	25,273	49,407	56,357	2,262,205	45 79
Yolo	333	11,754	14,697	55,967	311,660	21 21
Yuba	112	3,073	6,401	46,322	198,268	30 97
Totals	39,352	2,664,104	3,619,378	5,490,360	\$72,580,030	\$20 05

TABLE XL.

Irrigated Farms—Main Ditches, Laterals, Flowing Wells and Pumped Wells, 1910.

Counties	Main ditches		Laterals		Wells	
	Number	Length, miles	Number	Length, miles	Number of flowing wells	Number of pumped wells
Alameda	49	21				56
Alpine	25	34	3	1		
Amador	55	185	12	56		
Butte	135	270	145	170		46
Calaveras	148	124	32	31	6	7
Colusa	38	44	10	7		3
Contra Costa	176	172			1	26
Del Norte						
El Dorado	56	285	25	55		
Fresno	254	831	688	1,354	3	855
Glenn	50	186	554	1,073		105
Humboldt	33	26	4	2		2
Imperial	12	117	179	890		
Inyo	184	396	326	168	10	1
Kern	178	441	118	257	25	140
Kings	27	137	51	159	75	20
Lake	44	26	21	2	1	3
Lassen	295	368	263	116		
Los Angeles	601	800	494	500	376	1,673
Madera	34	79	30	294		83
Marin	5	5				1
Mariposa	49	21				2
Mendocino	33	19	8	6		6
Merced	45	261	353	352	29	78
Modoc	446	637	480	175	45	2
Mono	85	172	101	65		
Monterey	106	223	23	32		102
Napa	26	8	3	3		2
Nevada	110	236	46	82		5
Orange	309	180	115	246	588	580
Placer	35	194	46	108		2
Plumas	147	201	62	16	3	
Riverside	301	500	262	288	553	792
Sacramento	213	238	5	8		1,168
San Benito	64	61	12	33		87
San Bernardino	291	466	237	283	79	449
San Diego	288	259	244	140		438
San Francisco	24	7				39
San Joaquin	298	308	49	192		1,618
San Luis Obispo	51	42	5	3	4	12
San Mateo	57	58				40
Santa Barbara	76	75	4	5	7	113
Santa Clara	458	228	39	27	438	800
Santa Cruz	81	41			2	58
Shasta	446	678	130	81	2	34
Sierra	119	150	4	1		
Siskiyou	595	688	172	41		3
Solano	20	22				125
Sonoma	32	21				11
Stanislaus	23	153	34	274		3
Sutter	13	6				18
Tehama	136	164	41	40	1	141
Trinity	208	228	41	13		1
Tulare	752	1,033	577	629	79	794
Tuolumne	62	153	11	24	2	4
Ventura	148	177	53	87	32	157
Yolo	8	87	8	83		58
Yuba	36	128	13	87		11
Totals	8,590	12,620	6,143	8,590	2,361	10,724

PART X.

TRANSPORTATION BY WATER, RIVER TRAFFIC AND
PUBLIC ROADS.

The Sacramento River—Flood Control; Navigability of the Sacramento River; Traffic on the Sacramento, San Joaquin and Mokelumne Rivers; Number of Vessels, Registered Tonnage; Number of Passengers; Navigable Streams, Length and Depth at Low Water.

Public Roads—Mileage of Roads by Counties; Increase of Motor Vehicles in United States; Number of Automobiles and Motorcycles in California by Counties, 1917; Number of Automobiles, 1914-1917; Total Receipts by Counties, 1917.

TRANSPORTATION BY WATER.*

The largest volume of unused water in California comes from the Sacramento and San Joaquin valleys, and it is here that the greatest development in the future will take place. It is not believed that this increased use of water will seriously injure navigation interests, because a large percentage of the water diverted will return to the streams as waste seepage.

The complete utilization of these two rivers will give California the largest rural population of any state in the Union. Whatever expenditure is necessary to protect navigation interests, and enable this to be brought about should be made. Even if it requires the construction of locks and the canalizing of both streams, the improvements will be well worth their cost, and as it is a recognized field for the expenditure of government appropriations, a proper presentation of the situation should prove successful. The above is the opinion of such a high authority as Prof. Elwood Mead.

San Francisco Bay, which has an area of about 450 square miles, is by far the most important harbor of the state.

The Sacramento and San Joaquin Valleys.

The greater portion of the arable section of California is comprised in an immense valley about 400 miles long and 40 miles wide. It is inclosed on the east and west by the Sierra Nevada and Coast Range mountains, respectively. The two converge above Red Bluff in the north, while the southern boundary is formed by the Tehachapi Range, joining the Coast Range and the Sierra Nevada below Bakersfield. On the earlier maps of the United States Geological Survey this valley is called "The Great Interior Valley." Today it is known in its northern part as the Sacramento and in its southern part as the San Joaquin Valley, the first containing about 3,000,000 acres and the latter about 7,000,000 acres. There is no distinguishable dividing line between the two, though the Cosumnes River is usually accepted as such line.

*See Supplemental Report on Flood Control of the Sacramento River, submitted Mr. Curry, House of Representatives, House Report No. 616.

The upper portion of the Great Valley is drained by the Sacramento River, flowing south, and the lower portion by the San Joaquin, flowing north. The two rivers have a common delta, and their main streams, flowing on opposite sides of Sherman Island, empty side by side into Suisun Bay, an arm of San Francisco Bay, 61 miles from the sea. Because of their common delta and the difference in volume of their floods, the San Joaquin in the lower 45 miles of its course is subject to flood and injury from the Sacramento.

In the early pioneer days the Sacramento River was a perfectly clear stream with pebbly bottom. From 1850 to perhaps 1865 it was navigable at all seasons of the year for seagoing craft drawing from 9 to 13 feet of water up as far as Sacramento and, for the earlier part of the period named, some little distance beyond Sacramento. Indeed, most of the steamers which plied on the river in those days had to be seagoing craft, for they made their way to California from east Atlantic ports around Cape Horn or through the Straits of Magellan.

Sacramento River Flood Control.

What the completion of the Sacramento River flood-control project means to the state and the nation is indicated by the statement that only through this plan can flood control of the Sacramento River be secured; and that only through flood control thereof can the following results be attained:

(a) Restoration and maintenance of navigability of the Sacramento River, on which, in earlier days, ocean freighters drawing 13 feet of water used to deliver their cargoes at Sacramento city, 125 miles from the sea, at all seasons of the year.

(b) Protection of the San Joaquin River, which has a common delta with the Sacramento and which is threatened by floods from the Sacramento up to and including the city of Stockton, at the practical head of navigation, 45 miles from the river's mouth, 106 miles from the sea.

(c) Maintenance of an inland waterway system, of which the two navigable rivers must be necessarily main arteries. Upon such a waterway system depends in large measure future development of the Sacramento and San Joaquin valleys and the commerce of the San Joaquin today is limited practically to that stretch of the river lying between its mouth and the city of Stockton, a distance of 45 miles, the Government maintaining therein, under existing project, a channel depth of 9 feet. The river is navigable, however, for 15 miles above Stockton. The navigability of the upper river has been practically destroyed by the demands made upon its sources of supply for water for irrigation. In the San Joaquin Valley the volume of available water is less and the quantity of land to be irrigated much greater than in the Sacramento Valley.*

*See Supplemental Report on Flood Control of the Sacramento River, submitted by Mr. Curry, House of Representatives (House Report No. 616), 1916.

RIVER TRAFFIC.

Sacramento River.

Sections of the river	Distance, miles	Place	Miles from mouth of river
Mouth of river to Sacramento	60.7	Collinsville	0
Sacramento to Colusa	90	Sacramento	60.7
Colusa to Chico Landing	51.3	Vernon	81
Chico Landing to Tehama	37	Colusa	150.7
		Chico Landing	202
Total	239	Red Bluff	254.4

Navigability of the Sacramento River.

That portion of the Sacramento River below Red Bluff is considered a navigable stream.

Between Chico Landing and Sacramento the annual tonnage handled by river boats has averaged 120,000 tons of an aggregate annual value of \$6,000,000, but the tonnage handled between Red Bluff and Chico Landing has been relatively very light and constantly tending to decline.

The Sacramento River has a good navigable channel below Colusa. The following shows the low-water depths below Red Bluff, the head of navigation.

Below Sacramento, 64 miles, 7 feet minimum depth.

Sacramento to Colusa, 90 miles, 4 feet minimum depth.

Colusa to Chico, 57 miles, 3 feet minimum depth.

Chico to Red Bluff, 52 miles, 3 feet for about 6 months; $1\frac{1}{2}$ to 2 feet for about 6 months.

All of the Sacramento River that is used for navigation purposes is under improvement, and hence all of the tonnage may be considered affected by the improvement. The usual limit of drafts for loaded boats is $6\frac{1}{2}$ feet up to Sacramento, 4 feet up to Colusa, and 3 feet up to Chico Landing. Boats using this river as a rule load with any class of freight that is offered, and do not restrict themselves to any particular class of traffic.

Traffic on Sacramento, San Joaquin, and Mokelumne Rivers.

Commercial Statistics.—The commerce for the calendar year 1916 amounted to 875,780 short tons, of which grain and mill stuff formed about 23 per cent, potatoes 2 per cent, general merchandise 18 per cent, fuel oil 11 per cent, beans 4 per cent, lumber 5 per cent, the total commerce being valued at \$46,908,093. Following is a comparative statement of the amount and value of the commerce for the last five calendar years:

Calendar year	Short tons	Value
1912	477,292	\$27,755,325
1913	733,594	35,856,791
1914	721,090	38,211,760
1915	766,935	38,027,703
1916	875,780	46,908,093

San Joaquin River.

Commercial Statistics.—Practically all freight is transported over that portion of the river under improvement. The draft of loaded vessels is seldom over 7 feet. The commerce for the calendar year 1916 amounted to 824,222 short tons, of which grain and mill stuffs formed about 24 per cent, potatoes 16 per cent, general merchandise 17 per cent, fuel oil 8 per cent, beans 4 per cent, lumber 7 per cent, onions 6 per cent, sand 7 per cent; valued at \$42,179,160.

Calendar year	Short tons	Value
1912	632,591	\$38,854,539
1913	820,399	38,841,174
1914	772,156	35,479,741
1915	831,234	36,358,240
1916	824,222	42,179,160

The Feather River.

Commercial Statistics.—Heretofore commercial statistics for the Feather River have been combined with those of the Sacramento River and not kept entirely separate.

During the calendar year 1916 the unusually small tonnage is believed to be due to a combination of circumstances—a “strike” of river men, delay in getting the harvest to the river before the season of low water, etc.

Calendar year	Short tons	Value
1912	2,729	\$159,046
1913	3,332	207,366
1914	4,843	590,150
1915	2,906	
1916	392	

Tonnage of All Freight and of Grain and Live Stock Carried on San Joaquin and Sacramento Rivers, 1900-1908.

(Tons of 2,000 pounds.)

Calendar year	San Joaquin River, all freight, tons	Sacramento River, all freight, tons
1900	270,887	461,314
1901	357,746	452,965
1902	322,000	404,900
1903	366,038	383,724
1904	360,486	353,164
1905	373,186	365,957
1906	440,300	375,000
1907	736,472	367,224
1908	509,233	394,945

Mokelumne River.

Commercial Statistics.—The commerce for the calendar year 1916 amounted to 80,871 short tons, valued at \$5,202,847, of which barley was about 15 per cent; beans, 7 per cent; potatoes, 38 per cent; other vegetables, 11 per cent; and general merchandise, 14 per cent. (See San Joaquin River, "Commercial Statistics.")

Calendar year	Short tons	Value
1912 -----	50,443	\$2,833,704
1913 -----	90,585	5,079,932
1914 -----	69,783	3,045,870
1915 -----	88,624	4,033,698
1916 -----	80,871	5,202,847

The high class of freight handled on the San Joaquin and Sacramento rivers is a noticeable feature, the value averaging \$50 per ton, almost the highest, if not the highest, reported on any river in the United States. Ninety per cent of all freight between Sacramento and San Francisco and between Stockton and San Francisco is handled by boat, the average rate being 35 per cent less than by rail.

In the lower part of the Sacramento and San Joaquin valleys there are islands varying in area from 1,500 to 43,000 acres, most of which have been reclaimed for agricultural purposes. This overflow land (swamp land) is probably as good and as productive as any in the state of California. Reclaimed lands that are improved, *i. e.*, hop vineyards, orchards, asparagus and alfalfa lands, etc., are now valued as high as \$300 or more per acre, while the average value of the reclaimed land along the 65 miles of the river below Sacramento is about \$200 per acre.

Number of Vessels, Tonnage, and Passengers, 1916.

Sacramento River.

The freight and passenger traffic on the Sacramento River is handled by craft which operate on this stream exclusively, and by craft which operate part of the time on other streams (*i. e.*, San Joaquin and Mokelumne rivers), as follows:

Number of Vessels, Registered Tonnage, and Number of Passengers, 1916.

Class	Number	Net registered tonnage	Passengers
Registered:			
Steamers -----	39	12,812	89,677
Gas -----	91	2,598	22,750
Sailing -----	27	1,450	
Unregistered:			
Gas -----	26		3,239
Sailing -----			
Unrigged (claimed tonnage known) -----	54	13,826	
Unrigged -----	21		
Total -----	258		115,666

During the spring of 1915 a new line of boats began operating upon the Sacramento River. Two gas schooners make a daily trip from San Francisco to Courtland and return, hauling fruit, vegetables, and other freight.

Through the Northern Electric Railway drawbridge at M street, Sacramento, 3,054 steamboats, 1,005 barges, 969 gas boats, 73 sailing vessels, 30 dredges, and 29 pile drivers passed during the year.

Through the Southern Pacific Railway drawbridge at H street, Sacramento, 895 steamboats, 799 barges, 867 gas boats, 31 sailboats, 27 dredges and 20 pile drivers passed during the year. (Between M and H streets, Sacramento, the project depth changes from 7 feet to 4 feet.)

Through the Southern Pacific Railway drawbridge at Knights Landing, 553 steamboats, 408 barges, 321 gas boats, 6 sailboats, 8 dredges and 7 pile drivers passed during the year.

Through the Northern Electric Railway drawbridge at Meridian, 424 steamboats, 196 barges, 15 gas boats, 2 sailboats, and 9 dredges passed during the year.

In the above only those passages for which draw operation was required are tabulated.

San Joaquin River.

Number of Vessels, Registered Tonnage, and Number of Passengers, 1916.

Class	Number	Net registered tonnage	Passengers
Registered:			
Steamers -----	20	6,139	54,779
Gas -----	85	2,104	116,628
Sail -----	25	1,358	
Unregistered:			
Steamers -----			
Gas -----	14		11,079
Sail -----	2		
Unrigged (tonnage reported) -----	31	4,649	
Unrigged (tonnage not reported) -----	23		
Totals -----	200		182,486

Mokelumne River.

Number of Vessels, Registered Tonnage, and Number of Passengers, 1916.

Class	Number	Net registered tonnage	Passengers
Registered:			
Steamers -----	11	3,410	1,409
Gas -----	34	902	14,300
Sailing -----	2	117	
Unregistered:			
Gas -----	12		132
Sailing -----	1		
Unrigged (tonnage reported) -----	10	1,768	
Unrigged (tonnage not reported) -----	14		
Totals -----	84		15,841

NOTE.—Through the Southern Pacific Railway bridge over Snodgrass Slough, a tributary of the Mokelumne River, 60 gas boats, 2 sailing vessels, 46 barges, and 6 dredges passed during the year.

Navigable Streams—Length and Depth at Low Water.

Name and points connecting	Distance in miles	Navigable length	Depth at low water, feet	Traffic, tons	
				In 1905	In 1906
Redwood Creek:					
Mouth to Redwood.....		1.0	3.0	47,700	
San Joaquin River:					
Mouth to Stockton.....		40	8.0		971,382
Stockton to railroad crossing.....			3.0		
Stockton to Firebaugh.....			A few inches		
Mokelumne River:					
Mouth to Galt.....		20.0	2.0		50,000
Mouth to Snodgrass Slough.....	13.0		6.0		to 100,000
Sacramento River:					
Mouth to Red Bluff.....		262.0	2.5		
Mouth to Sacramento.....	64.0		7.0		375,000
Sacramento to Red Bluff.....	198.0		2.5		*
Feather River:					
Mouth to Marysville.....		30.0	1 to 2	5,306	
Petaluma Creek:					
Mouth to Petaluma.....		16.0	4.0		175,025
Napa River:					
Mouth to Napa.....		16.0	4.0		182,642

*Steamboat lines only.

Depth of Channel and Distance From Open Sea for California Ports.

Port	Location	Distance from open sea, nautical miles	Depth of channel		Remarks
			Mean low water, feet	Mean high water, feet	
Eureka	Humboldt Bay	5.5	18½	24	At wharves, 15 to 36 feet.
San Francisco	San Francisco Bay	14.8	18½	24	
Oakland	San Francisco Bay	14.8	18½	24	
Monterey	Bay of Monterey	3.0			
Port Harford	On the sea		27		
Santa Barbara	On the sea		25		At wharves, 15 to 48 feet.
Los Angeles ports:					
Port Los Angeles	On the sea		34		
Redondo Beach	On the sea				
San Pedro	San Pedro Harbor	1.9	20	25	
San Diego	San Diego Bay	6.1	25	29½	

PUBLIC ROADS.

The total mileage of all rural public roads in the United States, outside the limits of incorporated towns and cities, in 1916, was estimated as about 2,452,000 miles, and the total surfaced roads, 277,000 miles. In California the total mileage of all rural public roads in 1916 was estimated as 61,038 miles, of which 13,000 was surfaced.

The practice of improving the earth roads by the use of oil in California has been, to a large extent, discontinued, and this has had the effect of cutting down the mileage of that class of roads considerably, and so reducing the total mileage of improved roads. The information from some of the counties is not altogether satisfactory, but the figures are as accurate and complete as it was possible to obtain at the time.

Of the total mileage of public roads in the state in 1909, 579 miles were reported as having been surfaced with stone, 6,054 miles with gravel, 1,289 miles with sand clay, and 653 miles with oiled earth, making a total mileage of improved roads of 8,587, or 17.87 per cent. This is about 1 per cent less than was reported in 1904, and this decrease is due principally to the fact that the oiling of earth roads has been abandoned to a large extent, for while there were 2,541 miles of earth roads reported to have been oiled in 1904, there were only 653 miles of oiled roads reported in 1909.

The State Highway.

In 1909 the State Highway Act appropriated the sum of \$18,000,000 for the construction of highways in California. At the election in November, 1910, on the \$18,000,000 bond issue, out of a total of 173,806 votes, there was a majority in favor of the bonds of 12,786 votes. On November 7, 1916, the voters of California considered a new bond issue of \$15,000,000 for state highways. With a total of 679,346 votes cast, there was a majority of 405,132 in favor of the highway bonds, a majority of nearly 4 to 1, and more than thirty times the favorable majority at the election of 1910. This is a showing of the increase of interest in the road problem and must in part at least be considered a vote of approval by the people of the state highways already completed under the \$18,000,000 bond issue. Up to April 16, 1916, \$16,119,583 had been expended with very satisfactory results, as the following summary will show:*

Miles of road surveyed.....	2,280
Miles of right of way secured.....	1,705
Acres of right of way secured.....	13,327
Miles of highway constructed.	
Oiled macadam.....	129
Concrete pavement.....	933
Asphalt.....	33
Graded.....	395
Total.....	1,490
Miles of road paved by counties and taken over, improved and maintained by the state.....	108
State Highway Mileage, January 1, 1916. †	
Total all surfaced roads in state (approximate).....	13,000
Total all public rural roads in state.....	61,038
Percentage of surfaced roads in state.....	21.3
State and state-aid roads built in 1915.....	527
Total all state and state-aid roads built to January 1, 1916.....	1,651
Roads maintained with state aid, 1915 (approximate).....	1,000

*Report for 1917 not yet issued.

†U. S. Department of Agriculture Circular 63.

16-57910

TABLE XLI.

Mileage of Public Roads Outside of Incorporated Cities and Towns, 1914.

County	Total mileage of all roads	Surfaced roads							Increase in surfaced mileage over 1909	Graded and drained earth
		Concrete	Macadam	Bituminous macadam	Gravel	Sand clay	Other earth	Total of surfaced roads		
Alameda	588	88.79	62.7	17.35	215.09			828.91	61.75	84.63
Alpine	200									
Amador	580								85	
Butte	1,200	12.8	5		400			417.8	34.81	12.8
Calaveras	600								45	40
Colusa	1,169	11			566			567	48.5	568
Contra Costa	635	5.4	800	30				335.4	52.78	100
Del Norte	120								42.5	94
El Dorado	900	6		6				12	1.33	300
Fresno	3,800	27	14	1			1,080	1,122	29.52	1,900
Glenn	1,388	27.5		.5	395			423	30.92	188
Humboldt	1,348		15		310	110		435	32.27	80
Imperial	590	11.7				6		17.7	3	245
Inyo	923								17.7	800
Kern	1,400	61.8					500	561.8	40.12	200
Kings ¹	500	9					92	101	20.2	150
Lake	700				50			50	7.14	700
Lassen	1,700								— 50	
Los Angeles	3,500	50.8		409				459.8	13.13	940
Madera	1,250	17.1		34			7	58.1	4.61	
Marin ²	309									
Mariposa	460									
Mendocino	800	4		7.7				11.7	1.46	50
Merced	1,218	37			20	281.25		318.25	28.12	600
Modoc	650								— 10	300
Mono	425									
Monterey	1,090	20.7	50					70.7	6.48	467
Napa ¹	580	6.5	3		450			459.5	82.05	150
Nevada	800		25					25	3.12	50
Orange	615	97		5			350	452	73.49	50
Placer	1,200	10.1	5					15.1	1.25	50
Plumas ²	385				10			10	2.59	
Riverside	1,714	10.3		8				18.3	1.03	112
Sacramento	1,638	29.7	.7	82.97	10		50	173.37	10.59	500
San Benito	468	4.7	8	6.9	50	140		203.6	44.78	109
San Bernardino	700	75		50	200		300	625	89.28	
San Diego	5,000	42.8		2.3				45.1	.9	1,743
San Joaquin	1,350			34				34	2.51	294
San Luis Obispo	1,353	39.9					3	42.9	3.08	750
San Mateo	284	40	23	32			25	120	42.25	134
Santa Barbara	1,143	21.7		17			22.40	61.1	5.34	23.75
Santa Clara	675	45.1	250	42	92			429.1	63.57	75
Santa Cruz	450		10	3	50			63	14	221
Shasta	1,800				65			65	3.61	26.4
Sierra	379		5					5	1.31	50
Siskiyou	1,300		16.5		63			82.5	6.34	628
Solano	700	34.2	5	10			40	59.2	12.74	100
Sonoma	1,420	20.2						20.2	1.41	1,400
Stanislaus	1,200	21.7		40	40			101.7	8.47	920
Sutter	375	12		15	65	40		132	35.2	100
Tehama	750	9	7		100			116	15.46	600
Trinity	400								— 5	248
Tulare	3,800	13.7					1,000	1,013.7	28.15	1,800
Tuolumne	889						20	20	23.25	740
Ventura	554	31.6	3					34.6	6.25	24.5
Yolo	800	25	15.5	15	419.5	25		500	62.5	200
Yuba	600	3.4	14	9.2				23.6	4.43	10
Total	61,039	929.19	837.4	877.9	3,563.59	582.25	3,489.40	10,279.73	16.84	3,889.3

¹Concrete mileage reported by state geologist, balance 1909 figures. ²No report; 1909 mileage.

NOTE.—For mileage, cost and description of roads in 1904 and 1909, see Report for 1915, pages 251-252.

MOTOR VEHICLES.

During the past ten years the state registration of motor cars, including commercial vehicles in the United States, has increased 5,000 per cent, or from about 48,000 in 1906 to 2,445,664 in 1915. In 42 states of the Union all, or the major portion, of the motor vehicle revenue must be expended for the construction, improvement, or maintenance of the public roads, or for the maintenance of the state highway department. The tendency to put the expenditure of this large and increasing revenue directly in the hands of the state highway departments of the various states is very marked. In 20 states all, or the major portion, of the net motor vehicle revenues are expended by or under the supervision or direction of the state highway department. In seven states, including California, one-half to one-fourth of the state motor vehicle revenues are expended either by or under the direct supervision of the state highway department, and the remainder by the local authorities. The last two years there were eight states having upwards of 100,000 motor cars registered.

State	Number of motor cars, 1915	Number of motor cars, 1916
New York	255,242	314,222
Illinois	180,832	248,429
Ohio	181,332	252,431
California	163,797	232,440
Pennsylvania	160,137	230,578
Iowa	145,109	198,587
Michigan	114,845	160,062
Massachusetts	102,633	136,809

Motor Vehicle Registration in the United States, 1915-1916.

(Compiled by U. S. Department of Agriculture.)

	Total United States, 1915	Total United States, 1916
Automobiles	*2,445,664	3,394,314
Motorcycles	199,329	250,820
Owners' and chauffeurs' licenses	620,288	890,567
Manufacturers' and dealers' licenses	30,064	41,275
Automobile fines to state road fund	\$117,859	
Gross motor vehicle registration revenues	\$18,245,713	\$25,865,369

*Does not include motorcycles nor dealers, and manufacturers' licenses.

TABLE XLII.

Statement of Total Number of Registrations of Automobiles, Motorcycles, Chauffeurs, Automobile and Motorcycle Dealers in California. License issued January 1, to December 31, 1917.

(Compiled by Motor Vehicle Department of California.)

County	Automobiles	Motorcycles	Chauffeurs	Automobile dealers	Motorcycle dealers
Alameda	20,257	2,334	625	127	9
Alpine	18		1		
Amador	639	17	57	3	
Butte	2,823	256	110	24	2
Calaveras	539	38	18	2	
Colusa	1,271	81	58	14	1
Contra Costa	2,971	414	101	24	2
Del Norte	184	7	10	2	
El Dorado	497	21	19	3	
Fresno	14,356	1,792	356	118	5
Glenn	1,336	113	39	11	2
Humboldt	2,348	298	418	25	2
Imperial	4,446	162	183	44	
Inyo	664	5	14	4	
Kern	7,889	710	342	56	3
Kings	2,752	145	28	22	
Lake	544	21	53	5	
Lassen	509	14	23	4	
Los Angeles	93,654	9,599	4,106	710	39
Madera	1,076	119	40	7	
Marin	1,566	121	128	12	1
Mariposa	206	7	46	1	
Mendocino	1,333	41	62	10	1
Merced	2,172	183	51	18	2
Modoc	498	13	10	4	
Mono	56				
Monterey	2,430	214	175	20	2
Napa	1,537	163	102	16	1
Nevada	622	36	25	9	
Orange	8,132	1,095	185	72	8
Placer	1,425	110	61	13	
Plumas	347	12	12	1	
Riverside	5,108	744	174	41	4
Sacramento	8,399	856	502	73	6
San Benito	934	85	49	10	1
San Bernardino	7,737	1,211	301	73	7
San Diego	10,983	1,157	790	108	8
San Francisco	31,817	2,173	3,967	265	11
San Joaquin	7,936	845	212	71	3
San Luis Obispo	2,396	123	109	20	1
San Mateo	2,659	395	317	13	1
Santa Barbara	5,298	358	388	57	4
Santa Clara	9,755	1,475	510	78	9
Santa Cruz	2,291	234	100	29	4
Shasta	1,055	60	38	11	1
Sierra	154	4	9		
Siskiyou	1,264	50	57	6	
Solano	2,305	252	164	18	2
Sonoma	4,622	386	223	46	4
Stanislaus	5,730	543	127	53	5
Sutter	1,053	79	29	2	1
Tehama	1,224	124	66	14	3
Trinity	86	5	10	1	
Tulare	7,197	612	143	51	2
Tuolumne	683	24	39	4	
Ventura	3,307	196	48	30	1
Yolo	2,673	208	53	18	3
Yuba	999	71	73	14	1
Outside	159	6	1		
Totals	306,916	30,417	15,957	2,487	162

TABLE XLIII.

Comparative Statement of Number of Automobile Registrations by Counties for the Years 1914, 1915, 1916, and 1917.

(Compiled by Motor Vehicle Department of California.)

County	1914	1915	1916	1917
Alameda	8,449	11,440	15,997	20,257
Alpine	9	11	15	18
Amador	165	241	418	639
Butte	1,019	1,363	2,085	2,823
Calaveras	155	225	391	539
Colusa	425	502	812	1,271
Contra Costa	980	1,232	2,045	2,971
Del Norte	56	96	144	184
El Dorado	154	208	333	497
Fresno	4,488	6,177	9,521	14,356
Glenn	490	558	860	1,336
Humboldt	994	1,259	1,717	2,348
Imperial	1,515	1,785	3,022	4,446
Inyo	187	247	465	664
Kern	2,521	3,320	5,592	7,889
Kings	870	1,144	1,738	2,752
Lake	168	234	319	544
Lassen	181	241	394	509
Los Angeles	43,099	55,217	74,709	93,654
Madera	343	435	716	1,076
Marin	686	833	1,221	1,566
Mariposa	44	86	164	206
Mendocino	463	627	961	1,333
Merced	634	883	1,353	2,172
Modoc	136	230	389	498
Mono	12	18	32	56
Monterey	892	1,048	1,766	2,430
Napa	687	883	1,155	1,537
Nevada	169	293	485	622
Orange	3,761	4,913	6,440	8,132
Placer	437	630	977	1,425
Plumas	98	148	266	347
Riverside	2,128	2,844	3,934	5,108
Sacramento	3,419	4,655	6,415	8,399
San Benito	328	471	636	934
San Bernardino	3,198	4,404	6,249	7,737
San Diego	5,665	7,232	9,271	10,983
San Francisco	12,081	17,763	24,783	31,817
San Joaquin	2,500	3,644	5,671	7,936
San Luis Obispo	661	978	1,579	2,396
San Mateo	1,258	1,500	2,054	2,659
Santa Barbara	1,796	2,469	3,885	5,298
Santa Clara	3,941	5,275	7,488	9,755
Santa Cruz	966	1,173	1,663	2,291
Shasta	340	401	643	1,055
Sierra	64	72	104	154
Siskiyou	379	563	912	1,264
Solano	848	1,011	1,562	2,305
Sonoma	1,913	2,535	3,489	4,622
Stanislaus	1,791	2,486	3,637	5,730
Sutter	333	445	643	1,053
Tehama	428	556	817	1,224
Trinity	30	48	77	86
Tulare	2,412	3,125	4,946	7,197
Tuolumne	248	360	553	683
Ventura	1,410	1,797	2,540	3,307
Yolo	798	1,045	1,643	2,673
Yuba	324	421	682	999
Outside			112	159
Totals	123,516	163,795	232,440	306,916

TABLE XLIV.

Annual Statement of Apportionment by Counties for Period January 1, 1917, to December 31, 1917, inclusive.

(Compiled by Motor Vehicle Department of California.)

County	Gross receipts	Refunds allowed by law	Expense	Net receipts	Counties and state, each, apportionment
Alameda	\$193,640 00	\$4,641 70	\$17,045 69	\$171,952 61	\$85,979 29
Alpine	122 50	2 20	10 66	109 64	54 82
Amador	5,461 00	143 10	522 72	4,796 18	2,397 70
Butte	24,389 30	171 60	2,454 20	21,763 50	10,882 28
Calaveras	4,733 50	28 90	464 95	4,239 65	2,119 93
Colusa	11,266 00	165 80	1,205 10	9,895 10	4,947 83
Contra Costa	26,595 45	452 90	2,546 75	23,595 80	11,798 41
Del Norte	1,595 65	27 45	152 23	1,415 97	708 01
El Dorado	4,294 40	65 00	424 14	3,805 26	1,902 72
Fresno	123,871 55	2,362 70	12,466 19	109,042 66	54,524 01
Glenn	11,354 40	191 50	1,203 79	9,959 11	4,979 84
Humboldt	22,046 10	320 60	2,113 51	19,611 99	9,806 42
Imperial	37,702 65	1,003 35	4,053 97	32,645 33	16,323 62
Inyo	5,569 00	76 60	558 25	4,934 15	2,467 19
Kern	72,372 75	1,798 70	7,051 07	63,522 98	31,762 94
Kings	23,062 35	409 75	2,378 49	20,274 11	10,187 58
Lake	4,302 70	66 70	481 24	3,754 76	1,877 49
Lassen	3,898 30	35 50	350 71	3,512 09	1,756 11
Los Angeles	896,062 39	38,753 70	80,876 05	776,432 64	388,231 45
Madera	9,250 15	91 90	989 11	8,169 14	4,084 79
Marin	14,571 40	249 15	1,310 92	13,011 33	6,505 90
Mariposa	1,860 90	33 60	179 98	1,647 32	823 70
Mendocino	11,288 00	186 60	1,094 59	10,006 81	5,008 62
Merced	18,341 55	293 35	1,851 30	16,196 90	8,098 86
Modoc	3,581 70	31 50	418 00	3,132 20	1,566 21
Mono	352 15	2 20	45 01	304 94	152 49
Monterey	21,998 95	280 45	2,100 71	19,617 79	9,809 31
Napa	14,051 99	196 70	1,249 67	12,605 62	6,253 08
Nevada	5,593 30	82 50	508 32	5,002 48	2,501 33
Orange	75,338 35	1,536 25	6,919 17	66,882 91	33,442 90
Placer	12,351 15	199 55	1,193 96	10,957 64	5,479 07
Plumas	2,497 30	11 00	295 81	2,190 49	1,095 32
Riverside	46,329 46	1,206 75	4,302 53	40,820 18	20,410 91
Sacramento	76,858 00	2,370 50	7,145 19	67,342 31	33,672 56
San Benito	8,508 30	97 10	800 38	7,610 82	3,805 56
San Bernardino	70,389 09	1,530 10	6,463 82	62,395 17	31,198 80
San Diego	101,184 41	2,845 15	9,382 65	88,956 61	44,480 11
San Francisco	318,477 61	11,996 90	29,557 48	276,923 23	138,467 34
San Joaquin	71,381 90	1,403 35	7,184 27	62,794 28	31,398 69
San Luis Obispo	20,639 60	370 30	1,990 37	18,278 93	9,139 86
San Mateo	25,982 10	424 50	2,359 63	23,197 97	11,599 42
Santa Barbara	49,972 90	1,416 60	4,621 28	43,935 02	21,968 40
Santa Clara	93,384 55	1,692 75	8,633 96	83,057 87	41,530 58
Santa Cruz	20,703 05	426 75	2,007 44	18,268 86	9,134 84
Shasta	8,465 20	104 70	954 91	7,405 59	3,703 03
Sierra	1,137 30	5 90	161 52	969 88	484 99
Siskiyou	9,885 00	112 40	1,017 11	8,755 49	4,377 97
Solano	20,158 35	427 30	1,972 91	17,758 14	8,879 49
Sonoma	41,551 65	778 90	3,729 85	37,042 90	18,522 12
Stanislaus	48,774 35	952 50	5,186 04	42,635 81	21,319 11
Sutter	8,897 95	146 00	873 80	7,878 15	3,939 26
Tehama	10,720 80	271 25	1,048 98	9,400 57	4,700 50
Trinity	661 65	6 60	63 74	591 31	295 68
Tulare	61,423 45	952 05	6,257 62	54,213 78	27,108 25
Tuolumne	6,196 90	90 30	582 91	5,523 69	2,761 96
Ventura	30,567 70	606 60	2,905 14	27,055 96	13,528 56
Yolo	20,989 90	491 65	2,061 56	18,436 69	9,218 78
Yuba	9,173 05	127 55	850 12	8,195 38	4,097 86
Outside	198 90	11 80	82 20	*104 90	-----
Totals	\$2,846,030 00	\$84,778 75	\$266,713 66	\$2,494,537 59	\$1,247,268 80

*Prorated to each county.

PART XI.

NATIONAL FORESTS IN CALIFORNIA AND THE LUMBER INDUSTRY.

Grazing Permits; National Forests; Forest Fires; Land Classification Projects; Predatory Animals Destroyed; Timber Sold and Cut; Free Use of Timber; Ownership of Forests by Counties; Lumber Cut by Mills; Hard Woods and Soft Woods.

The total area within the boundaries of the twenty National Forests wholly or partly in California on June 30, 1917, was 24,153,060 acres. It must be remembered, however, that a considerable portion of this area, 5,285 969 acres, to be exact, is privately owned, so that the area of National Forest land belonging to the Government is only 18,867,091 acres within the state. This is larger than the area of National Forests in any other state in the Union. The area in California by forests, with the name of the forest headquarters is shown by the following table:

California.

Forest	Area National Forest land (acres)	Area privately owned land (acres)	Total area (acres)	Forest headquarters
Angeles	820,980	240,723	1,061,703	Los Angeles
California	807,444	255,178	1,062,622	Willows
Cleveland	547,981	265,635	813,616	Escondido
Crater*	46,977	10,045	57,022	Medford, Ore.
El Dorado*	549,392	286,408	835,800	Placerville
Inyo*	1,269,980	67,800	1,337,780	Bishop
Klamath*	1,470,841	263,824	1,734,665	Yreka
Lassen	936,877	384,466	1,321,343	Red Bluff
Modoc	1,182,986	399,873	1,582,859	Alturas
Mono*	784,620	90,241	874,861	Gardnerville, Nev.
Monterey	316,058	44,436	360,494	Santa Barbara
Plumas	1,144,835	288,025	1,432,860	Quincy
Santa Barbara	1,688,571	239,723	1,928,294	Santa Barbara
Sequoia	1,873,926	164,344	2,038,270	Bakersfield
Shasta	803,448	783,432	1,586,880	Sisson
Sierra	1,489,934	172,626	1,662,560	Northfork
Siskiyou*	349,069	52,726	401,795	Grants Pass, Ore.
Stanislaus	810,399	294,013	1,104,412	Sonora
Tahoe	542,226	666,851	1,209,077	Nevada City
Trinity	1,430,547	315,600	1,746,147	Weaverville
Totals	18,867,091	5,285,969	24,153,060	

*Area of forest in more than one state.

The total area within the boundaries of the National Forests has fluctuated considerably in the past, due to slight additions, but more particularly to eliminations which have been made for various reasons, among the more important of which has been the consistent effort to throw open to the public such lands within the forests as have been

classified as chiefly valuable for agriculture. Some few eliminations will undoubtedly be necessary in the future, but it is believed that the boundaries now established may be regarded as fairly permanent.

In accordance with the authority given by Congress to the Secretary of Agriculture, practically all lands within the National Forests of California have now been classified to determine whether or not they are chiefly valuable for agriculture and may be open to settlement and entry under the Forest Homestead Law.

Land Classification Projects in California January 1, 1917.

	Total acre classified, acres	Agricultural under present conditions, acres	Agricultural after removal of timber, acres
Angeles Forest—			
Cajon project	143,333	382	
Tujunga project	164,836	997	
1915 project	857,131	9,586	
Cleveland Forest—			
Laguna project	23,115		
Oak Grove project	56,920	11,265	
1915 project	806,044	2,926	
Lassen Forest—			
Hat Creek project	91,675	1,410	6,745
Santa Barbara Forest—			
Santa Clara project	394,229	6,946	
Ventura project	725,739	8,566	
Sequoia Forest—			
Sequoia project	2,113,180	81,429	
Shasta Forest—			
Cayton project	23,080		
Henderson project	13,785		530
Dulaney project	12,390		2,950
McCloud Flats project	35,760	740	7,550
Red Rock project	24,430	1,100	640
Sisson project	16,000	1,160	
Trinity Center project	38,400	263	
Sierra Forest—			
Sierra project	1,665,480	2,502	340
California Forest—			
California project	802,522	62	
El Dorado Forest—			
El Dorado project	548,611	214	640
Modoc Forest—			
Warner Mountain project	359,784		
Stanislaus Forest—			
Stanislaus project	809,679		
Tahoe Forest—			
Tahoe project	557,079	3,708	5,904
Totals	10,283,202	124,256	25,299

Since the chief purposes in establishing the National Forests were watershed protection, and the conservation of a public timber supply, they were necessarily established in mountainous regions. For this reason, the relative proportion of agricultural land is comparatively small, although the total area made available for agricultural use is considerable. The classification records are open to the public, although it is generally the case that the agricultural land is taken up by homesteaders nearly as fast as it is classified.

The National Forest Administrative Act contains authority for allowing the use of National Forest lands and resources as fully as may be

consistent with the accomplishment of the main purposes of watershed protection and conservation, and perpetuation of the timber supply. Under this authority, permits are granted for a great many uses of National Forest lands, such as apiaries, corrals, summer resorts, summer homes, municipal camp grounds, etc. A total of 4,142 of such permits were issued in 1917. These permits are, in effect, leases by the Forest Service for long periods at nominal sums, and they produced during 1917 a revenue of \$29,824. It has become a well established practice in California for the larger valley cities and municipalities of the state to lease from the Government beautiful tracts of National Forest land, upon which are established municipal camps, run by the cities or the municipalities for the benefit of the city dweller. California has, in fact, become a pioneer in this movement, and it is now possible for the person living in the valley towns to enjoy in these camps an extremely pleasant and inexpensive summer vacation.

Within the National Forests of the state hydroelectric plants, entirely or partially on government lands, now have a total installed capacity of 282,000 horsepower. The Government issues permits for these sites, which, it is estimated, will produce approximately 500,000 continuous horsepower under low water conditions.

In addition to the uses already mentioned, the National Forests of the state take care each year of a very considerable proportion of California's live stock. Cattle, horses, sheep and goats are allowed to graze upon the National Forests just so long as there is no serious interference with the purposes for which the forests were established. In view of war conditions, special measures have been taken to accommodate as many extra stock on the National Forests as is possible. This has been done as a war measure, and in accordance with the policy thus inaugurated in California, there was, within the National Forests of the state in 1917, a total of 49,010 sheep and goats, and 10,970 cattle, horses and swine in excess of the numbers carried during 1916.

Grazing investigations were carried on last year, and, based upon these inspection reports, it is estimated that the forests are capable of supporting a still further increase of approximately 160,000 sheep and goats, and nearly 40,000 cattle, horses and swine, by the time the range improvement work contemplated has been completed, and when the necessary co-operation with the stock men of the state, in the proper handling of stock on the range, is secured.

The following table shows the number of grazing permits granted during the years 1911-1917, and the number and kind of stock grazed upon the National Forests of California:

Grazing Permits, 1911-1917.

Year	Number of permits	Cattle, number	Horses, number	Hogs, number	Number of permits	Sheep and lambs	Goats, number
1911	2,422	151,582	9,824	3,867	298	372,646	13,464
1912	2,521	169,361	10,403	3,480	367	432,974	15,235
1913	2,664	169,951	11,765	2,360	377	438,556	13,249
1914	2,696	175,356	12,487	1,608	348	424,917	10,956
1915	2,694	176,616	10,383	1,644	317	392,271	6,644
1916	2,785	183,746	9,922	1,224	326	409,835	7,217
1917	2,913	196,002	8,933	857	378	456,325	9,427

To reduce loss of live stock on the National Forest ranges, the Forest Service has, in co-operation with local stock men, done considerable work in the eradication of poisonous plants, such as larkspur, from the ranges. In addition, and in co-operation with the United States Biological Survey, and the stock men, the Forest Service has taken an active part in the destruction of predatory animals. The following table shows the number of such animals killed by the Forest Rangers during 1910-1917:

Predatory Animals Destroyed, 1910-1917.

Animal	1910	1911	1912	1913	1914	1915	1916	1917	Total
Bears -----	73	37	12	6	28	38	27	8	229
Mountain lions -----	23	5	3	3		7	8	8	52
Wolves -----	2	7	2		6	16	1		34
Coyotes -----	908	743	478	337	419	337	1,551	120	4,888
Wildcats -----	309	193	160	132	91	101	342	33	1,361
Lynx -----	37	15	2	2		10	3	3	72
Totals -----	1,347	1,000	657	480	544	509	1,932	167	6,636

In California's National Forests there are about 109,000,000,000 feet of timber, largely pine, fir and cedar, having an estimated value of approximately \$225,000,000. About 75,000,000 feet of this timber is cut annually to fill the normal demand. A portion of the timber is, of course, located in the so-called "back country," and is, therefore, at present inaccessible, but will come on the market naturally, with the increase in California's population and with the more intensive development of resources.

The amount and value of timber sold and cut, and the sales within the National Forests of California in the fiscal years 1911-1917, are shown by the following table:

Timber Sold and Cut Under Commercial Sales in National Forests, 1911-1917.

Year	Timber sold, board feet	Value	Timber cut under sales, board feet	Value
1911 -----	112,438,000	\$295,536 22	37,899,000	\$80,243 65
1912 -----	109,214,000	232,697 81	43,914,000	97,239 33
1913 -----	1,064,804,000	2,324,936 08	52,419,000	108,708 74
1914 -----	79,706,000	153,171 54	48,598,000	105,467 99
1915 -----	32,251,000	61,647 59	35,841,000	78,400 33
1916 -----	151,964,000	306,540 25	55,251,000	119,921 05
1917 -----	122,133,000	286,599 66	66,643,000	143,352 01

In addition to the timber cut under commercial sales, a certain quantity is sold and cut at cost rates. Timber may be obtained at cost rates only by settlers living in or adjacent to the National Forests, who wish to use that timber in connection with direct development work on their ranches. In 1917 the number of such sales was 387; 1,952,000 board feet were sold for \$1,088.31. These sales are made in accordance with the timber sale policy of the Forest Service, which is to make provision first for local needs, both present and future. Sale of

timber for commercial purposes, and which will enter into the general markets, is considered only when it is clear that an excess over the permanent supply required by local industries exists. The number of such sales, classified according to the size of the sale, is shown by the following table:

Number of Timber Sales, 1911-1917.

Amount	1911	1912	1913	1914	1915	1916	1917
Under \$100	506	575	555	682	861	997	902
From \$100 to \$500.....	24	37	24	16	9	6	17
From \$500 to \$1,000.....	2	9	5	11	8	3	8
From \$1,000 to \$5,000.....	6	12	14	10	3	6	12
Over \$5,000	5	2	9	4	2	5	11
Total number of sales.....	543	635	607	723	883	1,017	950

In addition to sales at cost to settlers, residents and miners may obtain not to exceed \$20 worth of timber from the National Forests for their own use, free of charge each year. The material thus given away is restricted almost entirely to trees that should be removed for the benefit of the forest, and to dead timber which is a fire menace. Free use is also granted for co-operative and public enterprises. The amount and value of timber cut under free use during the years 1911-1917 is as follows:

Free Use of Timber, 1911-1917.

Year	Number of permits	Board feet	Value
1911	3,085	9,197,000	\$17,359 02
1912	2,756	8,490,000	14,797 95
1913	3,118	8,918,000	18,011 15
1914	2,915	8,416,000	15,250 47
1915	3,106	6,778,000	16,986 78
1916	2,797	7,711,000	18,788 44
1917	2,302	6,602,000	10,431 88

The receipts from the National Forests in California are largely from the timber sales, rental charges on account of water power and other uses, and fees obtained from the grazing of live stock. Twenty-five per cent of these receipts is paid annually by the United States to the state, to be expended for roads and schools in the counties containing National Forest land. Thus the increase in receipts which may reasonably be expected within the next few years will provide to the counties within which the National Forests are located, sums which should finally equal or exceed such taxes as might have been obtained by these counties had the lands involved passed into the hands of private owners. In addition to the twenty-five per cent mentioned, ten per cent of the total receipts is expended by the Forest Service for the construction of roads and trails where roads and trails are most needed by communities within or adjacent to the National Forests. The amounts paid to the state of California for the fiscal years 1910-1916 are shown by the following table:

Amounts Paid to the State from Forest Receipts for School and Road Moneys.

1910	-----	\$60,752 91
1911	-----	53,716 87
1912	-----	62,052 82
1913	-----	74,541 55
1914	-----	
1915	-----	67,611 87
1916	-----	79,350 88
1917	-----	109,008 01
Total	-----	581,574 91

Over \$800,000 is spent annually in administering and protecting California's National Forests. During the fiscal year ending June 30, 1917, permanent improvements, including some two hundred and thirty-nine miles of trails, and the same number of miles of telephone lines were built, at a cost of \$137,042. The trail and telephone systems within these forests now aggregate 3,742 miles of trail, and 4,607 miles of telephone lines.

Each National Forest is under the immediate control of a Forest Supervisor. For purposes of administration and protection, the forests are divided into Ranger districts, each of which is in charge of a District Ranger. Under the District Rangers are the protection forces—lookouts, patrolmen, and forest firemen. There are about 85 lookouts employed during the peak of the fire season, and these men, all of whom are stationed on the tops of the highest mountains throughout the forests, lead lonely lives. It is their duty to discover and report by telephone or heliograph to the nearest Ranger, patrolman, or fireman, every fire which starts within the forest. In addition to the lookouts, the Forest Service employs in California on an average of some 425 Rangers, patrolmen and firemen during the summer season. Something like 800 men—mountaineers, lumbermen, miners and ranchers, are also registered with the Forest Service as volunteers, to be called upon in emergencies. Private owners of timber within the National Forest are more and more rapidly taking advantage of the Government's fire protection system. During the fiscal year 1917, approximately \$50,000 was contributed by lumber companies, municipal organizations, railroads and owners of private timber lands for fire protection. This money was spent through co-operative agreement with the Forest Service on more than 4,000,000 acres of timber land and valuable watersheds.

It is conceded by those who have had the most experience, that the 1917 fire season was the most hazardous in California since the National Forests were put under Government administration. Even 1910 is not excepted. The forest officials reported in 1917 a total of 1,862 fires, 1,649 of which were within the National Forest areas. Many of these fires were started by lightning, but, unfortunately, the greater number must be laid to human agency. The Forest Service has always welcomed campers to the National Forests, but campers in 1917 were responsible for a total of 238 fires. These fires damaged over \$10,000 worth of property and cost more than \$20,000 to extinguish. The National Forests are still open to campers, but the Forest Service in California is making every effort, and particularly as a war measure, to warn them of the danger by fire through carelessness with matches, cigarettes and camp fires.

The following table gives the number of fires, the area burned over, and the damage, both to National Forest land and to land privately owned within the National Forests for the years 1908-1917 inclusive.

	National Forest			Private			Total		
	Number	Area	Damage	Number	Area	Damage	Number	Area	Damage
1908 -----							528	156,214	\$132,791
1909 -----	288	85,545	\$83,902	188	21,721	\$14,401	476	107,266	97,703
1910 -----	319	258,713	332,586	234	108,631	189,843	553	367,344	522,429
1911 -----	476	66,506	51,083	318	33,480	7,673	794	99,981	58,756
1912 -----	405	35,166	6,086	282	19,374	2,216	687	54,540	8,252
1913 -----	1,046	89,988	20,478	389	33,471	9,466	1,435	123,459	29,944
1914 -----	808	45,714	27,869	531	20,841	33,188	1,339	66,555	61,057
1915 -----	740	28,095	23,237	427	13,315	2,822	1,167	41,410	26,059
1916 -----	758	63,860	20,944	432	20,371	6,604	1,190	84,731	27,548
1917 -----	1,118	336,948	183,477	531	125,133	40,537	1,649	462,081	224,014

In the Forest Nursery at Pilgrim Creek, Siskiyou County, some 330,000 seedlings and 240,000 transplants are raised every year. This stock, after it reaches the age of two years, is set out within the larger brush fields of Northern California. A careful examination of these brush fields indicates very clearly that they supported at one time an excellent supply of timber, but as a result of repeated burnings, this timber has gradually disappeared and the brush has become so dense that it is, in places, well nigh impenetrable.

For the period of the war, approximately two hundred acres per year is being planted with stock raised in the Pilgrim Creek Nursery. Plans have, however, been projected by which a much greater number of stock will be raised in the nursery, and a correspondingly greater acreage of brush fields planted each year, as soon as the war is won.

Fire Report for 1917.*

The fire season of 1917 was the most severe since 1910. There were 670 more fires than in 1916, and 153 more than in 1915. Money damage exceeded the 1916 loss by \$330,647, and the 1915 loss by \$352,042. A longer and drier season tried the resources of the Federal Forest Service, and emphasized again the necessity for a paid fire patrol system under the direction of the State Forester.

The State Board of Forestry was called upon for assistance in fighting the larger fires. Voluntary fire fighters were directed personally by the State Forester, resulting in the saving of an unestimated amount of property.

Newspaper reports show that eight persons lost their lives by forest fires. These deaths could have been prevented had the Forestry Board been supported in the plea for adequate funds for fighting fires. Some of the most destructive fires, and by far the greater number, occurred in the northern portion of the state.

*From Report of the State Forester.

The following tables are self-explanatory, but do not show the loss of several millions of dollars worth of sawn lumber piled in the yards ready for war purposes:

Fire Data for 1917 (Outside National Forests).

County	Number of fires	Area burned over				Money damage		
		Timber, acres	Brush, acres	Grass, acres	Total acreage	Timber and range	Improvements	Total
Alameda	9	500	10,600	143	11,243	\$50 00	\$2,000 00	\$2,050 00
Alpine								
Amador								
Butte	13	2,550	6,255	916	9,721	240 00	550 00	790 00
Calaveras								
Colusa								
Contra Costa								
Del Norte	17	2,415	11,565		13,980	11,555 00		11,555 00
El Dorado	3	1	60		61			
Erssno	9	1,000	23,140	17,285	41,425	40 00		40 00
Glenn	1			80	80			
Humboldt	2	300	700	75	1,075			
Imperial								
Inyo								
Kern	2			1,020	1,020	200 00		200 00
Kings								
Lake	1	500	2,840	500	3,840		10 000 00	10,000 00
Lassen	1		1		1			
Los Angeles	17	5	3,055	2,015	5,075		100 00	100 00
Madera	4		1,500	392	1,892	20 00		
Marin	11	629	1,225	55	1,909	300 00	250 00	550 00
Mariposa	3	3,640	2,400	2,400	8,480	1,300 00	150 00	1,450 00
Mendocino	9	1,190	8,100	1,800	10,590	2,900 00	300 00	2,900 00
Merced	3		1	80	31			
Modoc								
Mono								
Monterey	4	1	71	40	112			
Napa	2	500	750	810	2,060	50 00		50 00
Nevada	6	1,080	45	502	1,627	884 50		884 50
Orange								
Placer	2		550	550	1,100		30 00	30 00
Plumas	2	17	46		63			
Riverside	10	1	1,432	1,883	3,299	823 00	10 00	333 00
Sacramento								
San Benito	1		15		15			
San Bernardino								
San Diego	45	1	8,676	2,261	10,938	15,540 00	480 00	16,020 00
San Francisco								
San Joaquin	6			561	561	1,000 00		1,000 00
San Luis Obispo								
San Mateo	5		3,000	20	3,020	800 00	500 00	1,100 00
Santa Barbara	3		20,000	202	20,202		10,000 00	10,000 00
Santa Clara	4		8,530	10	8,540			
Santa Cruz	8	15,840	11,515	25	27,480	12,339 00		12,339 00
Shasta	2	19	6		25			
Sierra								
Skagyou	10	5,428	14,306		19,734	25,392 00		25,392 00
Solano	4			182	182	150 00		150 00
Sonoma	7	7,100	11,640	5,615	24,355	247,200 00	27,100 00	274,300 00
Stanislaus								
Sutter	1			15	15			
Tehama	1	50	600		650			
Trinity								
Tulare	5		700	2,060	2,760	390 00		390 00
Tuolumne	7	30	1,500	1,614	3,144	1,532 00		1,532 00
Ventura	11	1,250	5,900	900	8,050	1,750 00		1,750 00
Yolo								
Yuba	1			5	5	5 00		5 00
Totals	252	44,137	100,724	43,449	248,300	\$323,460 50	\$51,470 00	\$374,930 50

THE LUMBER INDUSTRY.

The wooded land of the state is estimated to have an area of 44,700 square miles, or 22 per cent of the total area of the state. Most of the timber in this area is found upon the Sierra Nevada range and upon the Coast ranges north of San Francisco Bay. A little is found in the Coast ranges farther south, and in those of southern California. The principal species are redwood and yellow pine, with smaller amounts of sugar pine, Douglas fir, and incense cedar.

Redwood is the only important kind of lumber, the production of which is limited to one state. California has no competitor in its production, nor can it ever have, since there is no commercial supply of redwood timber elsewhere. This species is found in a narrow strip stretching from the Oregon line southward, closely bordering the coast, nearly to Monterey Bay. In this strip, comprising some 2,000 square miles, there is estimated to be 80,000,000,000 feet of redwood in a pure forest. This is probably the most dense forest, as measured by the amount of timber per acre, in the world. Lumbering is carried on mainly about Humboldt Bay, at Crescent City, near the Oregon line, and at various points in Mendocino County.

Yellow pine is found along the entire length of the Sierra Nevada and in the Coast ranges. It occupies in the Sierra a well-defined belt which, in the southern part of the range, is limited by a contour 3,000 feet above sea level, while northward it gradually descends, coming down to about 1,500 feet in the upper Sacramento Valley. Its upper limit is on an average about 6,500 feet, above which it is succeeded by species which are fitted to a colder climate. Throughout its range at higher elevations, it occurs with sugar pine in the average proportion of about three of the former to one of the latter. The forest also contains varying amounts of incense cedar and of Douglas fir. The composition of the forests in the northern part of the Coast ranges is quite similar to that in the Sierra, excepting that the proportion of Douglas fir is somewhat greater.

Scattered about in the yellow pine forests, on the slope of the Sierra Nevada, at altitudes ranging from 4,000 to 6,000 feet, are ten groves, differing greatly in size, of *Sequoia gigantea*, the big tree. These trees range in height up to 325 feet, and in diameter to a little over 30 feet. The Big Trees do not occur in pure stands but are intermingled with yellow and sugar pine, firs and cedar.

The total merchantable stand of saw timber in California, exclusive of the redwood belt, has been estimated at 263,600,000,000 feet, board measure, of which 131,200,000,000 feet is privately owned and 132,400,000,000 feet is the property of the government. Of the latter amount, 115,800,000,000 feet is in the national forests and the rest in national parks and Indian reservations or upon the public domain. The private and national forest timber taken together, a total of 247,000,000,000 feet, board measure, is composed of the principal forest species in about the following proportion: Sugar pine, 15 per cent; western yellow pine, 38 per cent; Douglas fir, 19 per cent; white fir, 14 per cent; incense cedar, 3 per cent; California red fir, 4 per cent; lodgepole pine, 2 per cent; big tree, 2 per cent; other species, 3 per cent.

Lumbering is one of California's most important industries. Its principal products are lumber, laths, shingles and shakes. The amount of lumber manufactured annually in the eleven years 1905 to 1916 is shown in the following table:

Lumber Cut or Manufactured, 1905-1917.

Year	M feet, board measure	Year	M feet, board measure
1905	1,077,499	1912	1,203,059
1906	1,348,599	1913	1,183,383
1907	1,345,943	1914	1,154,368
1908	996,115	1915	1,119,628
1909	1,143,507	1916	1,413,541
1910	1,254,826	1917	1,416,014
1911	1,207,561		

The laths, shingles and shakes manufactured during 1915, 1916 and 1917 are estimated as follows:

	Year 1915	Year 1916	1917
Laths	38,284,000	30,713,000	37,651,000 (20 mills)
Shingles	200,755,000	348,622,000	261,434,000 (41 mills)
Shakes	6,628,000	1,963,000	(Not compiled)

Lumber Cut by Species by 136 Mills in 1915.

Kind of wood	Class 5, 35 mills sawing 10,000M and over	Class 4, 8 mills sawing 5,000M to 10,000M	Class 3, 15 mills sawing 1,000M to 5,000M	Class 2, 15 mills sawing 500M to 1,000M	Class 1, 58 mills sawing 50M to 500M	Total
Douglas fir	100,078	11,845	1,900	1,511	2,346	117,680
Western pine	329,123	28,824	20,016	5,290	6,384	389,637
Redwood	399,553	7,644	8,972	1,215	1,440	418,824
Spruce	9,477					9,477
Cedar	9,213	2,554	84	151	183	12,185
Hemlock	4,537					4,537
Sugar pine	107,641	4,677	772	860	544	114,494
White fir	46,067	2,877	742	516	518	50,720
Oak*	6			790	6	802
Birch*				120		120
Jenlsero*				5		5
Spanish cedar*				52		52
Eucalyptus					200	200
Totals	1,005,665	58,421	32,486	10,510	11,621	1,119,628

*Imported in the log.

The lumber cut of 1915 was influenced by a large surplus carried over from 1914 and by the restricted markets brought about by the European war.

CUT OF LUMBER BY SPECIES BY 182 MILLS IN 1916.

District Forester DuBois estimates that the lumber cut in California in 1916 was probably the largest in the history of the state. To date 182 mills have reported a cut of 1,415,541,000 feet board measure. The estimated cut is 1,420,000,000 feet as against an estimated cut for 1915

of 1,130,000,000 feet. The output of fifty-two of the largest mills was 1,328,136,000 feet. The cut of more important species was reported as follows:

Western pine	494,973,000	feet board measure
Redwood	490,828,000	feet board measure
Sugar pine	165,461,000	feet board measure
Douglas fir	141,200,000	feet board measure
White fir	85,918,000	feet board measure
Cedar	16,587,000	feet board measure

The manufacturers of redwood in 1916 received an average of about three dollars more for their lumber than they did a year ago, while manufacturers of sugar and white pine received for uppers about six dollars more per thousand.

Sawmills, 1916.

Active sawmills (cutting 50 M and over) reporting, and reported production of each kind of lumber, lath and shingles.

Softwoods, in M feet, b. m.

Number of active sawmills ¹	136
Aggregate M feet board measure ¹	1,119,458
Douglas fir	117,951
Hemlock	4,537
Western yellow pine ²	389,991
Spruce	9,477
Redwood	418,824
Cedar	12,185
White fir ¹	50,820
Sugar pine	114,494
Total soft woods¹	1,118,279
Oak	802
Birch	120
Minor species	257
Total hard woods	1,179
Lath, thousand	38,284
Shingles, thousand	200,755

¹Includes 2 mills in Nevada. ²Includes 1 mill in Nevada.

Lumber Cut by Species by 169 Mills in 1917 in M Feet B. M.

Kind of wood	Class 5, 39 mills sawing 10,000M and over	Class 4, 9 mills sawing 5,000 to 10,000M	Class 3, 29 mills sawing 1,000 to 5,000M	Class 2, 22 mills sawing 500 to 1,000M	Class 1, 68 mills sawing 50 to 500M	Total
Douglas fir	132,115	9,617	9,361	2,008	2,982	156,083
Western pine	406,835	11,827	42,284	10,203	7,416	478,565
Redwood	442,886	36,886	6,609	389	1,066	487,458
Spruce	20,607					20,607
Cedar	15,240	574	5,088	215	193	21,310
Hemlock	3,379					3,379
Sugar pine	119,427	3,242	3,945	680	657	127,951
White fir	109,031	5,957	2,681	1,670	1,322	120,661
Total soft woods	1,249,520	67,725	69,968	15,165	13,636	1,416,014
Laurel						420
Eucalyptus						420
Lodgepole pine						75
Oak (Cal.)						44
Spanish cedar						6
Japanese oak						163
Total hard woods						1,128

During the ten years, 1899 to 1909, the output of rough lumber in California increased 55.1 per cent and that of laths 183.4 per cent, while the production of shingles decreased 11.7 per cent. The period of most rapid growth in the industry was from 1899 to 1904, when the output of lumber increased 46.2 per cent. The woods which supply the raw material are almost exclusively conifers, the hardwood cut in 1909, practically all of which was California or tanbark oak, forming only one-fifth of 1 per cent of the total lumber production during the year. A total of 521,630 thousand feet, board measure, or more than 45.6 per cent of the lumber output in 1909, was California redwood, a species of timber which does not occur in saw-log size outside of California. Chief among the other species sawed into lumber in 1909 were western pine, with a production of 364,748 thousand feet, board measure; Douglas fir, with a production of 88,852 thousand feet; sugar pine, with a production of 88,822 thousand feet. The manufacture of shingles, while carried on to some extent in connection with that of lumber, nevertheless amounts practically to a separate industry. Over 88 per cent of the shingle output of the state for 1909 was manufactured from redwood, which timber possesses in very high degree the qualities most desirable in shingle material.

The term "white fir" is used as a designation for two or three firs of the Rocky Mountains and the Pacific Coast. The lumber produced from them in no way resembles that of the Douglas fir, which, botanically, is not a fir at all.

In the production of redwood, yellow pine, sugar pine, and white fir, California holds the first place.

Sugar Pine. The commercial range of this great giant of the white pine family is confined almost entirely to the regions of the Sierra in California, where 91.4 per cent of the total cut of 97,191,000 feet was produced in 1909. The output was 81.5 per cent greater than in 1899. The average value of the product per thousand feet in 1909 was 36 cents greater than in 1908, but \$1.70 less than in 1907.

The lumber industry includes three distinct operations, which are in some cases carried on by the same organization, in others separately:

1. The logging industry, including the felling of timber, cutting it into lengths, and transporting it by rail or river or flume to the mill.
2. The sawmill industry, in which the raw material consists of saw-logs, the products of the lumber camps; the finished product of rough lumber, including beams, joists, scantling, boards, shingles, laths, etc.
3. The planing mill industry in which the raw material consists of rough lumber and the finished product planed lumber with such minor manufactures as are carried on in connection with these mills. In the United States this industry ranks fourth among the greatest manufacturing industries of the country, being exceeded in value of products only by iron and steel, the textile, and the slaughtering and meat-packing industries.

The ten largest holdings of timber lands comprise 2,448,094 acres, or approximately 42 per cent of all the privately-owned timber and cut-over land in the state. They are as follows:

Owners	Acres
Central Pacific Railroad Company (S. P.)	921,311
T. B. Walker and associates	673,665
McCloud River Lumber Company	232,063
Diamond Match Company	159,499
Hammond Lumber Company	94,760
Union Lumber Company	80,350
L. E. White Lumber Company	79,540
Weed Lumber Company	71,458
C. A. Smith	69,768
Sierra Nevada Wood and Lumber Company	65,680

The Southern Pacific holding is the greatest in the United States—106,000,000,000 feet. It is difficult to give an adequate idea of its immensity. It stretches practically 680 miles along that railroad, between Portland and Sacramento. The fastest train over this distance takes thirty-one hours. During all that time the traveler is passing through lands a large portion of which, for 30 miles on each side, belongs to the railroad, and in almost the entire strip this corporation is the dominating owner of both timber and land.

The holdings under 2,000 acres are too numerous to publish, but they are summarized as follows:

Size of holdings	Number of holdings	Amount in acres		Total
		Timber	Cut-over	
Below 1,000 acres	1,087	460,093	79,071	539,164
1,000 to 2,000 acres	196	195,687	59,321	255,008
2,000 acres and over	286	4,061,794	947,494	5,029,288
Totals		4,737,554	1,085,886	5,823,440

Of the standing timber in this state a very large percentage being in private ownership, the total acreage amounting to 4,555,941 in 1914.

Ownership of Forests.

County	Acres	County	Acres
Alpine	3,270	Plumas	224,717
Amador	17,903	Riverside	4,784
Butte	89,737	San Benito	2,960
Calaveras	66,663	San Bernardino	10,940
Del Norte	109,600	San Diego	23,460
El Dorado	96,820	San Luis Obispo	2,040
Fresno	19,963	Santa Barbara	160
Glenn	16,796	Santa Cruz	19,956
Humboldt	486,950	Shasta	429,512
Kern	8,600	Sierra	134,176
Lake	10,320	Siskiyou	693,180
Lassen	244,434	Sonoma	162,474
Madera	23,176	Tehama	126,358
Marin	11,597	Trinity	333,840
Mariposa	35,073	Tulare	33,358
Mendocino	475,318	Tuolumne	131,378
Modoc	265,317	Ventura	803
Mono	15,320	Yuba	19,400
Monterey	81,518		
Nevada	60,101	Total	4,555,941
Placer	156,949		

PART XII.

MANUFACTURES IN CALIFORNIA.

Lumber and Timber Products; Slaughtering and Meat-Packing; Canning and Preserving; Foundry and Machine Shops; Flour-mills; Printing and Publishing; Petroleum Refining; Dairy Products; Leather, Tanned and Curried; Malt Liquors; Wines; Gas, Illuminating and Heating; Cement; the Automobile Industry; Engines and Power; Summary of Manufactures in 1914; Manufactures in Certain Cities. 1909-1914.

MANUFACTURES, 1909-1914.

California shows a marked growth in manufactures during the last 45 years. The gross value of products per capita of the total population increased from \$119 in 1869 to \$258 in 1914, and the proportion which the manufactures of the state represented of the total value of the products of manufacturing industries in the United States advanced from 1.6 to 2.9 per cent during the same time. California ranked sixteenth among the states in 1869 in gross value of manufactured products, but had advanced to ninth place in 1914.

The totals presented do not include the statistics for an establishment operated by the Federal Government—the United States navy yard, located at Mare Island. In 1914 this plant employed an average of 2,163 wage earners and the value of work performed was \$1,349,104.

There were a number of changes in rank according to value of products in 1914, as compared with 1909, all the most important industries having changed places in the table. Canning and preserving and petroleum refining moved up from third and eighth in 1909 to first and second, respectively, in 1914, while lumber and timber and slaughtering and meat packing, which ranked first and second in 1909, were third and fourth, respectively, in 1914. Printing and publishing, bread and other bakery products, and butter, cheese, and condensed milk moved up one place in 1914, while foundry and machine-shop products, and flour-mill and gristmill products each dropped two places.

During the period 1899 to 1914 the value of manufactures in California increased at a somewhat greater rate than the value of the manufactures of the United States as a whole. The number of establishments reported at the census of 1914 represented an increase over 1899 of 101.3 per cent; average number of wage earners, 80.6 per cent; value of products, 176.9 per cent; and value added by manufacture, 186.1 per cent. The corresponding percentages for the decade 1904-1914 were—number of establishments, 47.1 per cent; wage earners, 38.9 per cent; value of products, 91.4 per cent; and value added by manufacture, 75.1 per cent. While there were employed on the average, during the year 1914, 139,481 wage earners in the manufactures of the state, large numbers were employed for short periods. The

greatest activity was reported for August, when 161,072 wage earners were employed.

The most important manufacturing industries are as follows:

Lumber and Timber Products. This industry, which embraces not only logging operations, sawmills, and planing mills, but also factories manufacturing wooden packing boxes, ranked first in 1909, but dropped to third place in 1914. It showed an increase of \$7,859,996, or 17.5 per cent, in value of products for the period of 1909-1914 and an increase of 52.7 per cent in the ten-year period from 1904 to 1914.

The lumber industry is one of the seasonal industries. The number of wage earners in January, 1909, the month of minimum employment, was 14,585 less than the number in July, the month of maximum employment.

Slaughtering and Meat-Packing. This classification includes the wholesale slaughtering and meat-packing establishments and those engaged in the manufacture of sausage only. The animals slaughtered are largely cattle and sheep from the foothills and lower mountain slopes and from the plateau region of the northeastern part of the state and southeastern Oregon, conditions in these sections being very favorable to stock raising. About half of the stock slaughtered is raised within the state. The fact that within recent years the meat packers have been able to overcome, through refrigeration, climatic difficulties, which required the excessive use of preservatives in salt meats, has been an important factor in the growth of this industry. The total value of products reported for the industry in 1914 amounted to \$50,011,820.

Canning and Preserving. This classification includes the canning of fruits and vegetables, fish, oysters, clams, etc., the preparation of pickled, smoked, and dried fish, the packing of dried fruits by packing houses which make a specialty of such business, and the manufacture of pickles, preserves, jellies, sauces, etc., but it does not include the drying and packing of fruits by the grower on the farm, nor does it include the canning of meats, soups, and similar products in meat-packing establishments (the statistics for which are included with those for the slaughtering and meat-packing industry). The canning, pickling, smoking and drying of fish and the canning of oysters, form comparatively unimportant branches of the industry. California far exceeds any other state in the value of products for this industry, the amount reported for 1914 being \$61,162,849, or 25.1 per cent of the total for the United States. Canning and preserving is a seasonal industry, giving employment to a large number of persons in July, August, September, and October, and to a comparatively small number during most of the other months of the year.

Foundry and Machine Shop Products. This industry embraces, in addition to the general class of foundries and machine shops, establishments engaged in such special lines as the manufacture of gas machines and gas and water meters, hardware, plumbers' supplies, steam fittings and heating apparatus, and structural ironware. It does not, however, include establishments which manufacture distinctive products covered by other classifications, such as cash registers and calculating machines, or electrical machinery, apparatus, and supplies. This industry ranked fourth among the manufacturing industries of the state in 1914 in

number of wage earners, giving employment to 9,747, or 7 per cent of the total for all industries.

Flour-mill and Gristmill Products. The statistics for all merchant mills grinding wheat, rye, buckwheat, corn or other grains are included in this classification. It does not, however, include factories making fancy cereals or other food preparations as a chief product, or mills doing custom grinding exclusively. This industry, measured by value of products, ranked fifth in 1909, but dropped to seventh place in 1914. There was a slight decrease in value of products but an increase in the number of wage earners and establishments during the five-year period. The totals do not include data for the small mills engaged exclusively in custom grinding for local consumption.

Printing and Publishing. This classification includes job printing, the printing and publishing of books, newspapers and periodicals, and music, bookbinding, steel engraving, and lithographing. More establishments were reported for this industry in 1914 than for any other industry in the state. The 1,543 establishments reporting included 822 publishing newspapers and periodicals and 631 doing book and job work exclusively. The average number of wage earners employed in the newspaper and periodical branch of the industry was 4,334, and the value of products, \$21,557,591; the average number of wage earners engaged in book and job work was 3,172, and the value of products, \$9,885,477. These two branches of the industry together employed 85.7 per cent of the average number of wage earners and reported 90.4 per cent of the total value of products for the entire industry in 1914.

Cars and General Shop Construction and Repairs by Steam Railroad Companies. This industry represents the work done in the car shops operated by steam railroad companies; these operations consist almost exclusively of repairs to the rolling stock and equipment. The average number of wage earners was 11,563 in 1914, the third largest number reported for any manufacturing industry in the state, and the value of the work done amounted to \$17,199,717.

Butter, Cheese and Condensed Milk. This industry, which in California is confined chiefly to the manufacture of butter, has made marked progress during the past decade, the value of products increasing from \$7,820,937 in 1904 to \$20,466,428 in 1914, a gain of 161.7 per cent.

Foundry and Machine Shop Products. This industry embraces, in addition to the general class of foundries and machine shops, establishments engaged in such special lines as the repairing of automobiles and the manufacture of engines, steam, gas, and water; gas machines and gas and water meters; hardware; plumbers' supplies; steam and other power pumps; steam fittings and heating apparatus; and structural ironwork. It does not, however, include establishments which manufacture distinctive products covered by other classifications, such as cash registers and calculating machines, or electrical machinery, apparatus, and supplies. The industry ranked fourth in 1914 among the manufacturing industries of the state in number of wage earners, giving employment to 9,747, or 7 per cent of the total for all industries.

Petroleum, Refining. This industry, which ranks second in the state in value of products, includes establishments engaged in the refining

of crude petroleum by distillation, and does not include those engaged in the manufacture of gasoline from natural gas at the wells. In the production of crude oil, California, with a marketed product of 99,775,327 barrels in 1914, or 37.5 per cent of the entire production of the country, is the leading state; and in petroleum refining, with products valued at \$55,527,651, the state ranks second, being exceeded only by New Jersey. In 1914 the refining industry gave employment to 1,930 wage earners, an increase of 107.5 per cent over the number reported in 1909, and during the same period the value of products increased \$37,649,645, or 210.6 per cent.

Gas, Illuminating and Heating. On account of the lack of coal in the state, the product of the gas plants has been limited to the manufacture of carbureted water gas and oil gas. According to the statistics for 1914, the production of oil gas greatly exceeded that of carbureted water gas. The total value of products reported for the industry in 1914 was \$13,578,367, an increase of \$4,651,823, or 52.1 per cent, over that for 1909.

Malt Liquors. This industry shows considerable growth, the gain in value of products in the five-year period 1909-1914 being \$3,141,437 and in value added by manufacture, \$1,920,577, or 33.7 per cent and 28.4 per cent, respectively; the previous five-year period 1904-1909 showed in value of products a gain of 24.1 per cent and in value added by manufacture, 28.5 per cent.

Wines. The extensive vineyards of California have placed this state far ahead of any other in the wine industry. In 1914 the value of products for the industry in the state, \$11,299,858, represented 68 per cent of the total for the United States, as compared with \$8,936,848, or 68.1 per cent, in 1909, and \$6,688,620, or 60.3 per cent, in 1904.

Leather, Tanned, Curried and Finished. The tanning, currying and finishing of leather did not become prominent in California until about 1861. From that time, however, it grew rapidly and since 1877 the local supply of hides and skins has not been large enough to satisfy the requirements of the industry, so that it has been necessary to supplement it by hides and skins brought in from other states or imported from foreign countries. Sole leather continues to be the leading product of the leather industry in California, and harness leather is second, though each shows a decrease in production as compared with the censuses of 1909 and 1904. The manufacture of cattle side upper, which has been insignificant, is now third in importance in the industry. In 1897 there were 142 establishments in the state engaged in the leather industry, their total output being valued at \$6,193,573. Since that time the number of establishments has decreased, but the value of products has shown a substantial increase, the value in 1914 being \$10,020,739.

Cement. California has numerous beds of soft limestone and clay which are relatively low in magnesia and which are being utilized to a considerable extent for the manufacture of Portland cement. In 1909 the industry had eight establishments, giving employment to an average of 2,407 wage earners and reporting a product valued at \$6,504,000.

The counties in which the industry is most extensively carried on are Contra Costa, Kern, Napa, Riverside, San Bernardino, Santa Cruz and Solano.

Laundries, 1909-1914.

California was second among the states in number of laundries and amount received for work done, and third in number of persons engaged in the industry; while in 1909 it ranked fourth in number of establishments and persons engaged in the industry and third in amount received for work done. The following table shows large increases for all items given, except "amount paid for contract work." The increase in the amount received for work done was \$4,406,943, or 46.2 per cent:

	Power laundries		
	Number or amount		Per cent of increase, ¹ 1909-1914
	1914	1909	
Number of establishments.....	532	321	65.7
Persons engaged.....	12,077	9,060	33.3
Proprietors and firm members.....	624	308	102.6
Salaried employees.....	1,037	714	45.2
Wage earners (average number).....	10,416	8,038	29.6
Primary horsepower.....	13,503	8,961	50.7
Capital.....	\$9,618,271	\$6,295,915	52.8
Salaries and wages.....	7,297,235	5,260,743	38.7
Salaries.....	1,084,550	789,726	37.3
Wages.....	6,212,685	4,471,017	39.0
Paid for contract work.....	38,485	51,428	-25.2
Rent and taxes.....	355,842	184,652	92.7
Cost of materials.....	2,262,195	1,612,112	40.3
Amount received for work done.....	13,948,738	9,541,795	46.2

¹A minus sign (—) denotes decrease.

Summary of Manufacturing Establishments, 1889-1914.

(From the Report of the Census Bureau.)

	Number or amount		
	1889	1909	1914
Number of establishments.....	4,997	7,659	10,057
Persons engaged in manufacture.....	*	141,576	176,547
Proprietors and firm members.....	*	8,077	10,429
Salaried employees.....	6,877	18,203	2,790
Wage earners (average number).....	77,224	115,296	139,481
Primary horsepower.....	126,953	329,100	491,025
Capital.....	\$175,468,000	\$537,134,000	\$736,105,455
Expenses.....	225,404,000	476,154,000	
Services—			
Salaries.....	\$7,495,000	\$22,955,000	\$35,230,000
Wages.....	39,890,000	84,142,000	106,612,681
Materials.....	\$164,894,000	\$325,238,000	\$447,474,531
Miscellaneous.....	13,125,000	43,819,000	
Value of products.....	257,386,000	529,761,000	712,800,764
Value added by manufacture (value of products less cost of materials).....	92,492,000	204,523,000	265,326,233

*Figures not available.

Leading Manufacturing Industries, 1914. Showing Relative Importance by Values.
(From the Bureau of the Census.)

Industry	Census of 1914					
	Number of establishments	Wage earners		Value of products		Value added by manufacture, amount
		Average number	Per cent distribution	Amount	Per cent distribution	
Canning and preserving	289	12,756	9.1	61,162,849	8.6	15,468,512
Petroleum, refining	38	1,930	1.4	55,527,651	7.8	17,357,834
Lumber and timber products	632	22,438	16.1	52,860,272	7.4	27,238,194
Slaughtering and meat packing	108	2,220	1.6	50,011,820	7.0	8,710,412
Printing and publishing	1,543	8,759	6.3	34,774,879	4.9	25,065,995
Foundry and machine-shop products	1,097	9,747	7.0	31,732,384	4.5	17,450,083
Flour-mill and grist-mill products	132	1,067	0.8	24,078,735	3.4	4,574,961
Bread and other bakery products	1,117	4,851	3.5	21,855,181	3.1	9,618,996
Butter, cheese, and condensed milk	201	1,044	0.7	20,466,428	2.9	2,492,007
Cars and general shop construction and repairs by steam-railroad companies	39	11,563	8.3	17,199,717	2.4	10,194,471
Sugar, beet	12	2,009	1.4	15,528,666	2.2	5,463,377
Gas, illuminating and heating	66	2,317	1.7	13,578,367	1.9	10,156,296
Liquors, malt	69	1,512	1.1	12,460,478	1.7	8,680,137
Liquors, vinous	202	1,602	1.1	11,299,858	1.6	4,471,116
Leather, tanned, curried, and finished	29	1,361	1.0	10,020,739	1.4	2,162,440
Coffee and spice, roasting and grinding	43	464	0.3	9,584,459	1.3	2,125,041
Shipbuilding, including boat building	52	3,457	2.5	8,104,033	1.1	4,617,449
Food preparations, not elsewhere specified	181	938	0.7	8,010,713	1.1	1,952,860
Cement	7	2,420	1.7	7,699,306	1.1	4,318,227
Confectionery	124	1,839	1.3	5,863,570	0.8	2,603,621
Clothing, men's, including shirts	96	2,468	1.8	5,563,511	0.8	2,607,954
Brick, tile, pottery, and other clay products	85	2,571	1.8	4,750,757	0.7	3,277,702
Copper, tin, and sheet-iron work	354	1,246	0.9	4,595,143	0.6	2,399,888
Furniture and refrigerators	162	1,620	1.2	4,563,465	0.6	2,668,059
Paving materials	41	1,167	0.8	4,512,846	0.6	2,011,424
Iron and steel, steel works and rolling mills	7	1,244	0.9	4,213,736	0.6	1,540,269
Paint and varnish	38	392	0.3	4,082,160	0.6	1,209,252
Tobacco, cigars and cigarettes	363	1,507	1.1	3,987,616	0.6	2,615,331
Marble and stone work	143	1,294	0.9	3,633,417	0.5	2,124,868
Ice, manufactured	95	1,139	0.8	3,587,334	0.5	2,661,260
Cars and general shop construction and repairs by electric railroad companies	27	2,086	1.5	3,283,619	0.5	1,761,602
Liquors, distilled, rum and brandies	13	112	0.1	3,049,552	0.4	2,090,980
Soap	25	244	0.2	2,967,932	0.4	949,679
Electrical machinery, apparatus and supplies	29	780	0.6	2,861,653	0.4	1,301,395
Leather goods	157	613	0.4	2,777,446	0.4	1,329,015
Clothing, women's	86	1,060	0.8	2,732,867	0.4	1,352,286
Patent medicines and compounds and druggists' preparations	126	328	0.2	2,495,911	0.4	1,308,667

Leading Manufacturing Industries, 1914—Continued.

Industry	Census of 1914					
	Num- ber of estab- lish- ments	Wage earners		Value of products		Value added by manufac- ture, amount
		Average number	Per cent distrib- ution	Amount	Per cent distrib- ution	
Automobiles, including bodies and parts.....	96	731	0.5	2,458,843	0.3	1,225,074
Mattresses and spring beds.....	49	654	0.5	2,447,507	0.3	1,028,825
Roofing materials, other than metal.....	9	306	0.2	2,377,705	0.3	921,945
Cooperage and wooden goods, not elsewhere specified.....	36	352	0.3	2,337,563	0.3	664,016
Fertilizers.....	16	196	0.1	2,330,761	0.3	471,201
Agricultural implements Boots and shoes.....	28 16	704 617	0.5 0.4	1,962,235 1,891,356	0.3 0.3	1,061,927 637,997
Confectionery (ice cream).....	59	265	0.2	1,781,870	0.2	687,394
Gas and electric fixtures and lamps.....	56	463	0.3	1,553,630	0.2	840,301
Chemicals.....	20	257	0.2	1,524,411	0.2	590,962
Jewelry.....	98	627	0.4	1,519,493	0.2	1,018,720
Iron and steel, wrought pipe.....	7	343	0.2	1,476,891	0.2	659,356
Boxes and cartons, paper Mineral and soda waters	23 175	753 363	0.5 0.3	1,451,047 1,390,518	0.2 0.2	744,176 900,387
Carriages and wagons and materials.....	155	537	0.4	1,383,867	0.2	886,792
Wirework, including wire rope and cable.....	20	200	0.1	1,360,776	0.2	454,919
Salt.....	22	347	0.2	1,214,551	0.2	817,518
Artificial stone products Millinery and lace goods	94 42	466 405	0.3 0.3	1,186,618 1,127,538	0.2 0.2	715,366 583,174
Awnings, tents and sails Brass, bronze, and cop- per products.....	40 36	244 247	0.2 0.2	1,123,503 951,309	0.2 0.1	413,739 464,103
Gloves and mittens, leather.....	24	422	0.3	950,679	0.1	493,113
Malt.....	3	34		938,055	0.1	265,783
Rubber goods, not else- where specified.....	11	226	0.2	905,408	0.1	426,124
Hosiery and knit goods Stoves and furnaces, in- cluding gas and oil stoves.....	16 27	405 334	0.3 0.2	902,211 862,530	0.1 0.1	478,352 518,279
Furnishing goods, men's Babbitt metal and solder	10 5	233 33	0.2 0.1	849,844 640,690	0.1 0.1	408,568 187,469
Coffins, burial cases, and undertakers' goods.....	10	149	0.1	615,905	0.1	226,901
Window shades and fix- tures.....	27	72		593,826	0.1	200,825
Photo-engraving.....	28	201	0.1	575,118	0.1	495,823
Paper goods, not else- where specified.....	9	206	0.1	553,806	0.1	286,977
Glass, cutting, staining, and ornamenting.....	38	147	0.1	550,738	0.1	298,259
Fur goods.....	19	126	0.1	509,291	0.1	308,460
All other industries.....	893	13,651	9.8	133,021,601	18.7	27,010,745
All industries.....	10,057	139,481	100.0	\$712,800,764	100.0	\$265,326,233

Canning and Preserving. Although this industry in California dates from about 1875, its real importance and development did not commence until several years later. The value of its products, which in 1889 was \$6,621,931, increased to \$14,940,882 in 1899, \$26,083,226 in 1904, \$32,914,829 in 1909, and \$61,645,825 in 1914.

The figures shown in the following table exceed those presented in the preceding tables owing to the fact that products are included which were reported by establishments primarily engaged in the manufacture of products other than those covered by this industry. The quantity and value, by classes, are as follows:

	1914	1909	1904
Canned vegetables:			
Asparagus—			
Cases No. 2 cans.....	620,859	296,388	
Value	\$2,733,950	\$1,794,346	
Beans—			
Cases No. 2 cans.....	154,882	47,505	65,641
Value	\$275,807	\$87,059	\$133,494
Peas—			
Cases No. 2 cans.....	165,540	123,349	68,142
Value	\$317,676	\$250,624	\$144,033
Pumpkin—			
Cases No. 3 cans.....	9,944	10,941	18,852
Value	\$11,348	\$15,165	\$30,156
Tomatoes—			
Cases No. 3 cans.....	1,730,487	536,837	541,776
Value	\$3,122,532	\$1,120,632	\$845,805
All other—			
Cases	119,621	64,480	286,172
Value	\$393,742	\$202,795	\$1,213,173
Total value	\$6,885,055	\$3,470,621	\$2,366,661
Canned fruits:			
Apples—			
Cases No. 3 cans.....	110,672	67,710	31,286
Value	\$214,021	\$136,855	\$67,591
Apricots—			
Cases No. 3 cans.....	1,005,234	627,701	532,038
Value	\$2,963,672	\$1,819,558	\$1,619,757
Berries—			
Cases No. 2 cans.....	165,198	95,092	67,467
Value	\$345,322	\$171,995	\$168,640
Cherries—			
Cases No. 2 cans.....	131,252	224,084	171,298
Value	\$459,005	\$491,575	\$457,169
Peaches—			
Cases No. 3 cans.....	2,922,637	1,149,590	744,715
Value	\$8,685,831	\$3,013,203	\$2,640,524
Pears—			
Cases No. 3 cans.....	692,782	433,796	524,197
Value	\$2,796,356	\$1,316,022	\$1,577,823
Plums—			
Cases No. 2 cans.....	150,216	138,995	196,379
Value	\$247,505	\$230,384	\$349,307
All other—			
Cases	117,608	20,013	54,215
Value	\$282,407	\$68,750	\$97,272
Total value	\$15,994,119	\$7,248,342	\$6,978,083

	1914	1909	1904
Dried fruits:			
Apples—			
Pounds	10,786,714	6,860,170	811,254
Value	\$663,673	\$481,173	\$40,659
Apricots—			
Pounds	39,266,294	29,205,569	19,559,573
Value	\$3,602,690	\$2,277,177	\$1,410,838
Peaches—			
Pounds	61,376,251	46,827,391	25,845,964
Value	\$2,888,962	\$2,422,043	\$1,701,105
Prunes—			
Pounds	123,586,570	118,917,876	114,580,431
Value	\$7,956,549	\$4,394,922	\$3,169,878
Raisins—			
Pounds	223,712,822	195,774,767	121,409,881
Value	\$13,681,048	\$6,912,533	\$6,349,381
All other, value	\$1,942,428	\$1,724,468	\$1,128,740
Total value	\$30,735,350	\$18,212,316	\$13,800,601
Fish and oysters:			
Canned fish and oysters, value ²	\$2,455,851	\$626,208	\$456,524
Sardines—			
Cases $\frac{1}{2}$ cans	302,736	1,980,364	860,000
Value	\$368,420	\$238,607	\$78,000
Tuna—			
Cases $\frac{1}{2}$ cans	437,090	"	"
Value	\$1,638,675	"	"
Salmon—			
Cases No. 1 cans	40,430	"	"
Value	\$241,335	"	"
All other—			
Cases	29,110	2,286,610	5,300,923
Value	\$207,421	\$387,601	\$378,524
Smoked and dried fish—			
Pounds	130,500	100,900	739,537
Value	\$16,312	\$14,680	\$71,088
Salted and pickled fish—			
Pounds	10,362,064	8,289,359	9,681,840
Value	\$543,184	\$515,993	\$483,610
Total value	\$3,015,347	\$1,156,881	\$1,011,222
Pickles, preserves and sauces, value	\$4,059,350	\$2,826,669	\$1,926,659
All other products, value	\$966,604		
Total value	\$61,645,825	\$32,914,829	\$26,083,226

¹Includes \$482,976 reported by 8 establishments engaged primarily in the manufacture of products other than those covered by this industry.

²Canned fish reported in pounds for 1909 and 1904.

³Figures not available.

The case, which is the unit of measure for canned fruits, vegetables, and fish, consists of 24 standard size cans for the first two named products and 48 for the latter. The No. 2 $\frac{1}{2}$ can was the principal size used for containers in California, but to make uniform comparison with other states, the 2 $\frac{1}{2}$ -can case has been adjusted to the No. 2 can case for asparagus, beans, peas, berries, cherries, and plums, and the No. 3 can case for all other fruit and vegetable products.

California ranked first among the states in the production of canned asparagus, apricots, peaches, pears, plums, and tuna fish. The state has practically a monopoly in the production of dried apricots and peaches, and a complete monopoly in the production of canned tuna fish.

Dried Fruits. The value of dried fruits constituted 49.9 per cent of

the total value of products for this industry in 1914, as compared with 55.3 per cent in 1909 and 52.9 per cent in 1904.

The increase in the value of dried fruits for the five-year period from 1909 to 1914 was \$12,523,034, or 68.8 per cent; the increase for the ten-year period from 1904 to 1914 was \$16,934,749, or 122.7 per cent.

In the state, according to value of products, raisins ranked first in importance, prunes second, apricots third, peaches fourth, and apples fifth. In the United States, the total value of all dried fruits produced in 1914 amounted to \$34,771,912, and of this amount, California reported \$30,735,350, or 88.4 per cent.

Canned Fruits. This group of products, which was second in importance in respect to value of products in 1914, amounted to \$15,994,119, or 25.9 per cent of the total value of the state for this industry.

The most important of the canned fruit product was peaches, valued at \$8,685,831, or 54.3 per cent of the total for this group of the industry, and of a total value for the United States of \$9,585,773, California reported 90.6 per cent. Canned peaches in California increased in value, 1909 to 1914, from \$3,013,203 to \$8,685,831, or 188.3 per cent.

Canned Vegetables. Canned vegetables, which ranked third in importance for this industry, increased in value during the five-year period from \$3,470,621, reported in 1909, to \$6,855,055 for 1914, or 97.5 per cent. Canned tomatoes and canned asparagus were the principal products of this group in 1914. Of a value of \$6,855,055, reported for canned vegetables, tomatoes ranked first, with \$3,122,532, or 45.6 per cent of the total; asparagus ranked second, with \$2,733,950, or 39.9 per cent of the total. Other canned vegetables were of minor importance.

Canned Fish and Oysters. Canned fish and oysters increased in value during the five-year period from 1909 to 1914, \$1,829,643, or 292.2 per cent, due principally to the canning of tuna fish, of which there was none reported at previous censuses. The product of tuna fish alone amounted in value in 1914 to \$1,638,675.

MANUFACTURES IN THE TWENTY-ONE LEADING CITIES IN 1914.

(From the Census Bureau.)

In Fresno the canning and preserving industry, which in this city is confined largely to the drying of fruits, especially of raisins, was the leading industry in 1914, contributing 69.4 per cent of the total value of all manufactured products of the city. The city is one of the principal centers of the canning and preserving industry of the state, reporting nearly one-fifth of the total value of products for this industry in California and a much larger proportion of the total value of dried fruits.

Canning and preserving was also the leading industry in San Jose, the output of the industry representing 46.6 per cent of the total value of all manufactured products for that city. Other important industries were copper, tin, and sheet-iron works and foundries and machine shops.

In Sacramento, the capital of the state, steam railroad repair shops constituted the most important industry, with canning and preserving

next in rank. Steel works and rolling mills, the brewing of malt liquors, and printing and publishing were other important industries.

In Stockton, the flourmill and gristmill industry led all others, the value of its products representing 42.4 per cent of the total value of manufactures reported for the city. The manufacture of agricultural implements was also an important industry, 63.5 per cent of the total value of products for this industry in California being reported from Stockton.

The most important industries in San Diego were slaughtering and meat packing, printing and publishing, lumber mills, and bakeries.

The manufacture of coconut oil, included under "oils, not elsewhere specified," ranked first in Berkeley in 1914, closely followed by foundry and machine shop products; other leading industries were fertilizers, bakeries, and canning and preserving. Flour mills and gristmills ranked first in Vallejo, and some of the important industries in Long Beach were the planing mill branch of the lumber industry, canning and preserving fish, and shipbuilding, while Bakersfield had large steam railroad repair shops. In the remaining cities shown in the table, the chief industries were as follows: In Alameda, shipbuilding; in San Bernardino, steam railroad repair shops; in Eureka, lumber; in Riverside, cement; in Pasadena and Santa Barbara, bakeries and printing and publishing; in Santa Cruz, lumber and slaughtering and meat packing; in Pomona, foundry and machine shop products and canning and preserving; and in Redlands, bakeries.

City	Average number of wage earners			Value of products		
	1914	1909	1904	1914	1909	1904
San Francisco -----	31,758	28,244	38,429	\$162,299,795	\$133,041,069	\$137,788,233
Los Angeles -----	23,744	17,327	10,424	103,457,993	68,586,274	34,814,475
Oakland -----	7,706	6,905	3,353	28,521,828	22,342,926	9,014,705
Fresno -----	2,903	1,938	1,915	16,520,109	11,090,195	9,753,632
Sacramento -----	5,334	4,521	4,203	16,382,670	14,006,303	10,072,893
Stockton -----	1,919	1,571	1,333	11,293,483	11,470,425	8,029,490
San Jose -----	2,029	1,399	1,260	10,806,117	5,482,747	4,238,216
San Diego -----	2,069	1,071	541	9,020,895	4,740,990	1,974,430
Berkeley -----	1,328	1,084	338	7,321,044	4,435,374	1,473,888
Vallejo -----	292	203	-----	3,071,919	1,895,562	-----
Long Beach -----	885	277	-----	2,944,888	927,180	-----
Bakersfield -----	894	746	-----	2,928,373	2,818,744	-----
Alameda -----	1,087	915	279	2,786,176	2,554,417	696,761
San Bernardino -----	1,077	729	-----	2,612,669	1,659,705	-----
Eureka -----	799	946	-----	2,480,374	3,011,682	-----
Riverside -----	838	1,263	-----	2,307,226	1,012,675	-----
Pasadena -----	536	499	-----	1,971,891	1,724,364	-----
Santa Cruz -----	401	274	-----	1,320,427	1,161,269	-----
Santa Barbara -----	276	1,239	-----	843,673	1,842,831	-----
Pomona -----	322	224	-----	825,000	559,661	-----
Redlands -----	107	147	-----	521,571	518,320	-----

Figures do not agree with those published, because it was necessary to revise them in order to include data only for those establishments located within the corporate limits of the city.

MANUFACTURES IN CERTAIN CITIES IN 1914.

ALAMEDA.

The population of Alameda at the census of 1910 was 23,383, and it is estimated that it was 26,000 on July 1, 1914.

The statistics represent the establishments located within the corporate limits of the city.

The salaries and wages amounted to \$1,239,000 in 1914, and to \$966,000 in 1909, the increase being \$273,000, or 28.3 per cent.

The number of salaried employees was 127 in 1914, as compared with 111 in 1909, making an increase of 16, or 14.4 per cent.

The average number of wage earners was 1,092 in 1914, and 915 in 1909, the increase being 177, or 19.3 per cent.

A comparative summary for the city for 1909 and 1914 follows:

	Census		Per cent of increase, 1909-1914
	1914	1909	
Number of establishments.....	53	51	-----
Persons engaged in manufactures.....	1,267	1,076	17.8
Proprietors and firm members.....	48	50	-----
Salaried employees.....	127	111	14.4
Wage earners (average number).....	1,092	915	19.3
Primary horsepower.....	3,493	1,526	128.9
Capital.....	\$3,737,000	\$3,002,000	24.5
Services.....	1,239,000	966,000	28.3
Salaries.....	210,000	170,000	23.5
Wages.....	1,029,000	796,000	29.3
Materials.....	1,005,000	929,000	8.2
Value of products.....	2,794,000	2,554,000	9.4
Value added by manufacture (value of prod- ucts less cost of materials).....	1,789,000	1,625,000	10.1

BERKELEY.

The population of Berkeley at the census of 1910 was 40,434, and it is estimated that it was 52,000 on July 1, 1914.

The statistics represent the establishments located within the corporate limits of the city and show that the manufactures have increased since 1909.

The salaries and wages amounted to \$1,513,000 in 1914 and to \$1,094,000 in 1909, the increase being \$419,000, or 38.3 per cent.

The number of salaried employees was 318 in 1914, as compared with 221 in 1909, making an increase of 97, or 43.9 per cent.

The average number of wage earners was 1,328 in 1914 and 1,084 in 1909, the increase being 244, or 22.5 per cent.

A comparative summary for the city for 1909 and 1914 follows:

	Census		Per cent of increase, 1909-1914
	1914	1909	
Number of establishments.....	95	84	
Persons engaged in manufactures.....	1,724	1,420	21.4
Proprietors and firm members.....	78	115	
Salaried employees.....	318	221	43.9
Wage earners (average number).....	1,328	1,084	22.5
Primary horsepower.....	3,508	2,433	44.0
Capital.....	\$5,814,000	\$3,465,000	67.8
Services.....	1,513,000	1,094,000	38.3
Salaries.....	459,000	254,000	80.7
Wages.....	1,054,000	840,000	25.5
Materials.....	4,769,000	2,687,000	77.5
Value of products.....	7,321,000	4,435,000	65.1
Value added by manufacture (value of prod- ucts less cost of materials).....	2,552,000	1,748,000	46.0

OAKLAND.

The population of Oakland at the census of 1910 was 150,174, and it is estimated that it was 183,000 on July 1, 1914.

The statistics represent the establishments located within the corporate limits of the city and show that the manufactures have increased since 1909. In the order of their importance, from a percentage standpoint, the increases for the several items rank as follows: Capital, 90.5 per cent; primary horsepower, 38.5 per cent; salaried employees, 32.3 per cent; salaries, 30.7 per cent; number of establishments, 29.9 per cent; value added by manufacture, 28.8 per cent; value of products, 27.7 per cent; materials, 26.6 per cent; wages, 12.2 per cent; wage earners, 11.4 per cent; and proprietors and firm members, 4.5 per cent.

A comparative summary for the city for 1909 and 1914 follows:

	Census		Per cent of increase, 1909-1914
	1914	1909	
Number of establishments.....	573	441	29.9
Persons engaged in manufactures.....	9,699	8,538	13.6
Proprietors and firm members.....	579	554	4.5
Salaries employees.....	1,428	1,079	32.3
Wage earners (average number).....	7,692	6,905	11.4
Primary horsepower.....	18,950	13,683	38.5
Capital.....	\$36,411,000	\$19,113,000	90.5
Services.....	7,667,000	6,618,000	15.9
Salaries.....	1,701,000	1,301,000	30.7
Wages.....	5,966,000	5,317,000	12.2
Materials.....	14,999,000	11,847,000	26.6
Value of products.....	28,522,000	22,343,000	27.7
Value added by manufacture (value of prod- ucts less cost of materials).....	13,523,000	10,496,000	28.8

FRESNO.

The population of Fresno at the census of 1910 was 24,892 and it is estimated that it was 30,000 on July 1, 1914.

The statistics represent the establishments located within the corporate limits of the city, and show that the manufactures have increased between 1909 and 1914, from 76 establishments to 117, and in value of products from \$11,090,000, or an increase of 49 per cent.

A comparative summary for the city for 1909 and 1914 follows:

	Census		Per cent of increase, 1909-1914
	1914	1909	
Number of establishments.....	117	76	
Persons engaged in manufactures.....	3,330	2,262	47.2
Proprietors and firm members.....	95	43	
Salaried employees.....	332	281	18.1
Wage earners (average number).....	2,903	1,938	49.8
Primary horsepower.....	4,080	3,403	19.9
Capital.....	\$7,375,000	\$4,933,000	49.5
Services.....	1,965,000	1,431,000	37.3
Salaries.....	454,000	328,000	38.4
Wages.....	1,511,000	1,103,000	37.0
Materials.....	12,171,000	7,992,000	52.3
Value of products.....	16,520,000	11,090,000	49.0

EUREKA.

The population of Eureka at the census of 1910 was 11,845 and it is estimated that it was 14,000 on July 1, 1914.

The statistics represent the establishments located within the corporate limits of the city.

A comparative summary for the city for 1909 and 1914 follows:

	Census	
	1914	1909
Number of establishments.....	57	48
Persons engaged in manufactures.....	928	1,075
Proprietors and firm members.....	46	30
Salaried employees.....	83	99
Wage earners (average number).....	799	946
Primary horsepower.....	3,707	3,901
Capital.....	\$2,976,000	\$3,306,000
Services.....	729,000	797,000
Salaries.....	124,000	124,000
Wages.....	605,000	673,000
Materials.....	1,217,000	1,494,000
Value of products.....	2,480,000	3,012,000

BAKERSFIELD.

The population of Bakersfield at the census of 1910 was 12,727, and it is estimated that it was 16,000 on July 1, 1914.

The statistics represent the establishments located within the corporate limits of the city.

The salaries and wages amounted to \$1,026,000 in 1914 and to \$758,000 in 1909, the increase being \$268,000, or 35.4 per cent.

The number of salaried employees was 109 in 1904, as compared with 78 in 1909, making an increase of 31.

The average number of wage earners was 895 in 1914 and 746 in 1909, the increase being 149, or 20 per cent.

A comparative summary for the city for 1909 and 1914 follows:

	Census		Per cent of increase, 1909-1914
	1914	1909	
Number of establishments.....	51	27	---
Persons engaged in manufactures.....	1,046	844	23.9
Proprietors and firm members.....	42	20	---
Salaried employees.....	109	78	---
Wage earners (average number).....	895	746	20.0
Primary horsepower.....	2,450	910	169.2
Capital.....	\$2,749,000	\$1,791,000	53.5
Services.....	1,026,000	758,000	35.4
Salaries.....	147,000	94,000	56.4
Wages.....	879,000	664,000	32.4
Materials.....	1,623,000	1,700,000	-4.5
Value of products.....	2,928,000	2,819,000	3.9

A minus sign (—) denotes decrease.

LOS ANGELES.

The population of Los Angeles at the census of 1910 was 319,198, and it is estimated that it was 439,000 on July 1, 1914.

The statistics represent the establishments located within the corporate limits of the city, and show that the manufactures have increased since 1909.

A comparative summary for the city for 1909 and 1914 follows:

	Census		Per cent of increase, 1909-1914
	1914	1909	
Number of establishments.....	1,911	1,325	44.2
Persons engaged in manufactures.....	31,532	21,875	44.1
Proprietors and firm members.....	1,767	1,181	49.6
Salaried employees.....	6,029	3,367	79.1
Wage earners (average number).....	23,744	17,327	37.0
Primary horsepower.....	64,665	33,166	95.0
Capital.....	\$101,681,000	\$59,518,000	70.8
Services.....	26,025,000	16,500,000	57.7
Salaries.....	7,748,000	3,912,000	98.0
Wages.....	18,277,000	12,588,000	45.2
Materials.....	58,941,000	38,913,000	51.5
Value of products.....	103,458,000	68,586,000	50.8
Value added by manufacture (value of products less cost of materials).....	44,517,000	29,673,000	50.0

POMONA.

The population of Pomona at the census of 1910 was 10,207 and it is estimated that it was 12,000 on July 1, 1914.

The statistics represent the establishments located within the corporate limits of the city, and show that the manufactures have increased since 1909.

A comparative summary for the city for 1909 and 1914 follows:

	Census—		Per cent of increase, 1909-1914
	1914	1909	
Number of establishments.....	54	30	
Persons engaged in manufactures.....	459	285	61.0
Proprietors and firm members.....	63	32	
Salaried employees.....	74	29	
Wage earners (average number).....	322	224	43.8
Primary horsepower.....	806	334	141.3
Capital.....	\$1,192,000	\$629,000	89.5
Services.....	275,000	173,000	59.0
Salaries.....	61,000	21,000	190.5
Wages.....	214,000	152,000	40.8
Materials.....	324,000	230,000	40.9
Value of products.....	825,000	559,000	47.6
Value added by manufacture (value of products less cost of materials).....	501,000	329,000	52.3

LONG BEACH.

The population of Long Beach at the census of 1910 was 17,809, and it is estimated that it was 24,000 on July 1, 1914.

The statistics represent the establishments located within the corporate limits of the city, and show that the manufactures have increased since 1909.

A comparative summary for the city for 1909 and 1914 follows:

	Census		Per cent of increase, 1909-1914
	1914	1909	
Number of establishments.....	94	51	
Persons engaged in manufactures.....	1,128	413	173.1
Proprietors and firm members.....	82	49	
Salaried employees.....	161	87	
Wage earners (average number).....	885	227	219.5
Primary horsepower.....	2,999	1,450	106.8
Capital.....	\$3,229,000	\$1,326,000	143.5
Services.....	805,000	294,000	173.8
Salaries.....	199,000	87,000	128.7
Wages.....	606,000	207,000	192.8
Materials.....	1,546,000	498,000	210.4
Value of products.....	2,945,000	927,000	217.7
Value added by manufacture (value of products less cost of materials).....	1,399,000	429,000	226.1

PASADENA.

The population of Pasadena at the census of 1910 was 30,291, and it is estimated that it was 41,000 on July 1, 1914.

The statistics represent the establishments located within the corporate limits of the city, and show that the manufactures have increased since 1909.

A comparative summary for the city for 1909 and 1914 follows:

	Census		Per cent of increase, 1909-1914
	1914	1909	
Number of establishments.....	118	88	-----
Persons engaged in manufactures.....	821	708	16.0
Proprietors and firm members.....	120	92	-----
Salaried employees.....	148	117	26.5
Wage earners (average number).....	553	499	10.8
Primary horsepower.....	1,782	969	83.9
Capital.....	\$1,601,000	\$1,347,000	18.8
Services.....	585,000	497,000	17.7
Salaries.....	156,000	117,000	33.3
Wages.....	429,000	380,000	12.9
Materials.....	869,000	853,000	1.9
Value of products.....	1,972,000	1,724,000	14.4
Value added by manufacture (value of products less cost of materials).....	1,103,000	871,000	26.6

RIVERSIDE.

The population of Riverside at the census of 1910 was 15,212, and it was estimated that it was 18,000 on July 1, 1914.

The statistics represent the establishments located within the corporate limits of the city, and show that the manufactures have increased since 1909.

A comparative summary for the city for 1909 and 1914 follows:

	Census		Per cent of increase, 1909-1914
	1914	1909	
Number of establishments.....	69	52	-----
Persons engaged in manufactures.....	1,043	398	165.4
Proprietors and firm members.....	66	55	-----
Salaried employees.....	139	75	82.7
Wage earners (average number).....	838	263	218.6
Primary horsepower.....	7,952	675	1,078.1
Capital.....	\$6,851,000	\$1,084,000	532.0
Services.....	704,000	259,000	171.8
Salaries.....	203,000	49,000	314.3
Wages.....	501,000	210,000	138.6
Materials.....	1,093,000	523,000	109.0
Value of products.....	2,307,000	1,013,000	127.7
Value added by manufacture (value of products less cost of materials).....	1,214,000	490,000	147.8

SACRAMENTO.

The population of Sacramento at the census of 1910 was 44,696, and it is estimated that it was 63,000 on July 1, 1914.

The statistics represent the establishments located within the corporate limits of the city, and show that the manufactures have increased since 1909.

A comparative summary for the city for 1909 and 1914 follows:

	Census		Per cent of increase, 1909-1914
	1914	1909	
Number of establishments.....	286	212	11.3
Persons engaged in manufactures.....	6,148	5,275	16.5
Proprietors and firm members.....	257	219	17.4
Salaried employees.....	557	535	4.1
Wage earners (average number).....	5,334	4,521	18.0
Primary horsepower.....	13,909	8,567	62.4
Capital.....	\$13,583,000	\$10,128,000	34.2
Services.....	4,827,000	4,545,000	6.2
Salaries.....	664,000	621,000	6.9
Wages.....	4,163,000	3,924,000	6.1
Materials.....	9,050,000	6,902,000	31.1
Value of products.....	16,383,000	14,006,000	17.0
Value added by manufacture (value of products less cost of materials).....	7,333,000	7,104,000	3.2

SAN BERNARDINO.

The population of San Bernardino at the census of 1910 was 12,779, and it is estimated that it was 16,000 on July 1, 1914.

The statistics represent the establishments located within the corporate limits of the city, and show that the manufactures have increased since 1909.

A comparative summary for the city for 1909 and 1914 follows:

	Census		Per cent of increase, 1909-1914
	1914	1909	
Number of establishments.....	54	41	-----
Persons engaged in manufactures.....	1,283	883	45.3
Proprietors and firm members.....	50	38	-----
Salaried employees.....	156	116	34.5
Wage earners (average number).....	1,077	729	47.7
Primary horsepower.....	1,715	1,411	21.5
Capital.....	\$1,392,000	\$1,242,000	12.1
Services.....	1,005,000	734,000	36.9
Salaries.....	180,000	95,000	89.5
Wages.....	825,000	639,000	29.1
Materials.....	1,420,000	763,000	86.1
Value of products.....	2,613,000	1,660,000	57.4
Value added by manufacture (value of products less cost of materials).....	1,193,000	897,000	33.0

REDLANDS.

The population of Redlands at the census of 1910 was 10,449, and it is estimated that it was 13,000 on July 1, 1914.

The statistics represent the establishments located within the corporate limits of the city.

A comparative summary for the city for 1909 and 1914 follows:

	Census	
	1914	1909
Number of establishments.....	28	37
Persons engaged in manufactures.....	177	260
Proprietors and firm members.....	25	36
Salaried employees.....	45	77
Wage earners (average number).....	107	147
Primary horsepower.....	379	439
Capital.....	\$669,000	\$1,104,000
Services.....	129,000	147,000
Salaries.....	48,000	47,000
Wages.....	81,000	100,000
Materials.....	215,000	239,000
Value of products.....	522,000	518,000

SAN DIEGO.

The population of San Diego at the census of 1910 was 39,578, and it is estimated that it was 49,000 on July 1, 1914.

The statistics represent the establishments located within the corporate limits of the city, and show that the manufactures have increased since 1909.

A comparative summary for the city for 1909 and 1914 follows:

	Census		Per cent of increase, 1909-1914
	1914	1909	
Number of establishments.....	257	117	119.6
Persons engaged in manufactures.....	2,976	1,440	106.7
Proprietors and firm members.....	244	99	146.5
Salaried employees.....	672	270	148.9
Wage earners (average number).....	2,060	1,071	92.3
Primary horsepower.....	6,754	3,269	106.6
Capital.....	\$10,866,000	\$5,326,000	104.0
Services.....	2,237,000	1,069,000	109.3
Salaries.....	668,000	263,000	154.0
Wages.....	1,569,000	806,000	94.7
Materials.....	4,582,000	2,667,000	71.8
Value of products.....	9,021,000	4,741,000	90.3
Value added by manufacture (value of products less cost of materials).....	4,439,000	2,074,000	114.2

SAN FRANCISCO.

The population of San Francisco at the census of 1910 was 416,912, and it is estimated that it was 448,000 on July 1, 1914.

The statistics represent the establishments located within the corporate limits of the city, and show that the manufactures have increased since 1909.

A comparative summary for the city for 1909 and 1914 follows:

	Census		Per cent of increase, 1909-1914
	1914	1909	
Number of establishments.....	2,334	1,796	30.0
Persons engaged in manufactures.....	42,089	36,910	14.0
Proprietors and firm members.....	2,932	2,544	15.2
Salaried employees.....	7,399	6,122	20.9
Wage earners (average number).....	31,758	28,244	12.4
Primary horsepower.....	61,838	49,934	23.8
Capital.....	\$145,622,000	\$133,824,000	8.8
Services.....	35,385,000	30,467,000	16.1
Salaries.....	10,096,000	8,086,000	24.9
Wages.....	25,289,000	22,381,000	13.0
Materials.....	97,040,000	76,217,000	27.3
Value of products.....	162,300,000	133,041,000	22.0
Value added by manufacture (value of products less cost of materials).....	65,260,000	56,824,000	14.8

STOCKTON.

The population of Stockton at the census of 1910 was 23,253, and it is estimated that it was 26,000 on July 1, 1914.

The statistics represent the establishments located within the corporate limits of the city and show that there was a slight decrease in the capital invested, materials, and value of products for 1914 as compared with 1909.

A comparative summary for the city for 1909 and 1914 follows:

	Census		Per cent of increase, 1909-1914
	1914	1909	
Number of establishments.....	157	142	10.6
Persons engaged in manufactures.....	2,605	2,008	29.7
Proprietors and firm members.....	161	139	15.8
Salaried employees.....	467	298	56.7
Wage earners (average number).....	1,977	1,571	25.8
Primary horsepower.....	5,147	4,971	3.5
Capital.....	\$7,762,000	\$8,144,000	-4.7
Services.....	2,192,000	1,657,000	32.3
Salaries.....	588,000	370,000	58.9
Wages.....	1,604,000	1,287,000	24.6
Materials.....	7,432,000	7,997,000	-7.1
Value of products.....	11,293,000	11,470,000	-1.5

Minus sign (—) denotes decrease.

SANTA BARBARA.

The population of Santa Barbara at the census of 1910 was 11,659, and it is estimated that it was 14,000 on July 1, 1914.

The statistics represent the establishments located within the corporate limits of the city, and show that the manufactures have increased since 1909.

A comparative summary for the city for 1909 and 1914 follows:

	Census		Per cent of increase, 1909-1914
	1914	1909	
Number of establishments.....	49	49	
Persons engaged in manufactures.....	495	340	45.6
Proprietors and firm members.....	46	43	
Salaried employees.....	71	58	
Wage earners (average number).....	378	239	58.2
Primary horsepower.....	837	452	85.2
Capital.....	\$1,033,000	\$758,000	36.3
Services.....	578,000	224,000	158.0
Salaries.....	117,000	44,000	165.9
Wages.....	461,000	180,000	156.1
Materials.....	395,000	439,000	-10.0
Value of products.....	1,271,000	843,000	50.8
Value added by manufacture (value of products less cost of materials).....	876,000	404,000	116.8

Minus sign (—) denotes decrease.

SAN JOSE.

The population of San Jose at the census of 1910 was 28,946, and it is estimated that it was 37,000 on July 1, 1914.

The statistics represent the establishments located within the corporate limits of the city, and show that the manufactures have increased since 1909.

A comparative summary for the city for 1909 and 1914 follows:

	Census		Per cent of increase, 1909-1914
	1914	1909	
Number of establishments.....	225	149	51.0
Persons engaged in manufactures.....	2,635	1,790	47.2
Proprietors and firm members.....	229	134	70.9
Salaried employees.....	377	257	46.7
Wage earners (average number).....	2,029	1,399	45.0
Primary horsepower.....	3,847	1,668	130.6
Capital.....	\$12,212,000	\$3,483,000	250.6
Services.....	1,747,000	1,109,000	57.5
Salaries.....	420,000	237,000	77.2
Wages.....	1,327,000	872,000	52.2
Materials.....	7,146,000	3,205,000	123.0
Value of products.....	10,806,000	5,483,000	97.1
Value added by manufacture (value of products less cost of materials).....	3,660,000	2,278,000	60.7

SANTA CRUZ.

The population of Santa Cruz at the census of 1910 was 11,146, and it is estimated that it was 13,000 on July 1, 1914.

The statistics represent the establishments located within the corporate limits of the city, and show that the manufactures have increased since 1909.

A comparative summary for the city for 1909 and 1914 follows:

	Census		Per cent of increase, 1909-1914
	1914	1909	
Number of establishments.....	80	34	-----
Persons engaged in manufactures.....	558	388	43.8
Proprietors and firm members.....	94	31	-----
Salaried employees.....	62	83	-----
Wage earners (average number).....	402	274	46.7
Primary horsepower.....	2,832	1,827	55.0
Capital.....	\$3,212,000	\$2,605,000	23.3
Services.....	326,000	287,000	13.6
Salaries.....	60,000	77,000	-22.1
Wages.....	266,000	210,000	26.7
Materials.....	745,000	667,000	11.7
Value of products.....	1,324,000	1,161,000	14.0
Value added by manufacture (value of products less cost of materials).....	579,000	494,000	17.2

Minus sign (—) denotes decrease.

VALLEJO.

The population of Vallejo at the census of 1910 was 11,340, and it is estimated that it was 13,000 on July 1, 1914.

The statistics represent the establishments located within the corporate limits of the city, and show that the manufactures have increased since 1909.

A comparative summary for the city for 1909 and 1914 follows:

	Census—		Per cent of increase, 1909-1914
	1914	1909	
Number of establishments.....	29	23	-----
Persons engaged in manufactures.....	355	271	31.0
Proprietors and firm members.....	30	22	-----
Salaried employees.....	33	46	-----
Wage earners (average number).....	292	203	43.8
Primary horsepower.....	1,656	1,616	2.5
Capital.....	\$1,667,000	\$1,559,000	6.9
Services.....	293,000	259,000	13.1
Salaries.....	46,000	75,000	-38.7
Wages.....	247,000	184,000	34.2
Materials.....	2,046,000	1,404,000	45.7
Value of products.....	3,072,000	1,896,000	62.0
Value added by manufacture (value of products less cost of materials).....	1,026,000	492,000	108.5

Minus sign (—) denotes decrease.

SUMMARY FOR THE STATE.

A comparative summary for the state for 1909 and 1914 follows:

	Census—		Per cent of increase, 1909-1914
	1914	1909	
Number of establishments.....	10,057	7,659	31.3
Persons engaged in manufactures.....	176,548	141,576	24.7
Proprietors and firm members.....	10,430	8,077	29.1
Salaried employees.....	26,637	18,203	46.3
Wage earners (average number employed during the year).....	139,481	115,296	21.0
Wage earners, by months:			
January.....	119,688	94,747	
February.....	121,611	94,252	
March.....	126,749	100,372	
April.....	135,252	108,437	
May.....	140,981	115,839	
June.....	144,762	119,911	
July.....	157,054	124,886	
August.....	161,072	131,202	
September.....	159,574	132,280	
October.....	152,431	129,864	
November.....	132,945	121,486	
December.....	121,653	110,281	
Primary horsepower.....	491,025	329,100	49.2
Capital.....	\$736,105,000	\$537,134,000	37.0
Services.....	140,843,000	107,097,000	31.5
Salaries.....	35,230,000	22,955,000	53.5
Wages.....	105,613,000	84,142,000	25.5
Materials.....	447,475,000	325,238,000	37.6
Value of products.....	712,801,000	529,761,000	34.6
Value added by manufacture (value of prod- ucts less cost of materials).....	265,326,000	204,523,000	29.7

State Summary, 1899-1914.

Census year	Number of estab- lishments	Wage earners (average number)	Primary horsepower	Expressed in thousands			
				Capital	Wages	Materials	Value of products
1899.....	4,997	77,224	126,953	175,468	39,890	164,894	257,386
1904.....	6,839	100,355	210,359	282,647	64,657	215,726	967,218
1909.....	7,659	115,296	329,100	537,134	84,142	325,238	529,761
1914.....	10,057	139,481	491,025	736,106	105,613	447,474	712,801

MANUFACTURES IN THE TWENTY-ONE LEADING CITIES IN 1914.

(From the Census Bureau.)

Number of Establishments, Wage Earners, and Value of Products.

City and value of product	Number of establishments	Wage earners		Value of products		Value added by manufacture	
		Average number	Per cent of total	Amount	Per cent of total	Amount	Per cent of total
Alameda—							
Less than \$5,000.....	20	7	0.6	\$46,944	1.7	\$26,410	1.5
\$5,000 to \$20,000.....	17	56	5.2	198,548	6.8	99,052	5.6
\$20,000 to \$100,000....	8	126	11.6	304,867	10.9	168,366	9.4
\$100,000 to \$1,000,000	7	898	82.6	2,244,817	80.6	1,489,597	83.5
	52	1,087	100.0	\$2,786,176	100.0	\$1,783,425	100.0
Bakersfield—							
Less than \$5,000.....	8	6	0.7	\$18,813	0.6	\$12,923	1.0
\$5,000 to \$20,000.....	21	85	9.5	222,510	7.6	154,552	11.8
\$20,000 to \$100,000....	16	170	19.0	772,210	26.4	385,016	29.5
\$100,000 and over.....	6	633	70.8	1,914,840	65.4	752,708	57.7
	51	894	100.0	\$2,928,373	100.0	\$1,305,199	100.0
Berkeley—							
Less than \$5,000.....	24	16	1.2	\$63,191	0.9	\$43,405	1.7
\$5,000 to \$20,000.....	28	76	5.7	277,464	3.8	170,761	6.7
\$20,000 to \$100,000....	22	205	15.4	865,493	11.8	464,797	18.2
\$100,000 and over.....	21	1,031	77.6	6,114,896	83.5	1,873,288	73.4
	95	1,328	100.0	\$7,321,044	100.0	\$2,552,251	100.0
Eureka—							
Less than \$5,000.....	22	21	2.6	\$57,498	2.3	\$41,071	3.2
\$5,000 to \$20,000.....	18	75	9.4	190,785	7.7	99,007	7.8
\$20,000 to \$100,000....	9	90	11.3	327,873	13.2	200,212	15.9
\$100,000 to \$1,000,000	8	613	76.7	1,904,218	76.8	922,607	73.1
	57	799	100.0	\$2,480,374	100.0	\$1,262,897	100.0
Fresno—							
Less than \$5,000.....	26	13	0.4	\$69,817	0.4	\$46,992	1.1
\$5,000 to \$20,000.....	41	183	6.3	446,575	2.7	290,632	6.7
\$20,000 to \$100,000....	29	342	11.8	1,423,025	8.6	739,880	17.0
\$100,000 to \$1,000,000	17	1,027	35.4	6,959,091	42.1	1,843,144	42.4
\$1,000,000 and over.....	4	1,338	46.1	7,621,601	46.1	1,427,987	32.8
	117	2,903	100.0	\$16,520,109	100.0	\$4,348,635	100.0
Long Beach -							
Less than \$5,000.....	34	38	4.3	\$90,962	3.1	\$58,646	4.1
\$5,000 to \$20,000.....	34	119	13.4	373,195	12.7	202,529	14.5
\$20,000 to \$100,000....	19	294	33.2	901,169	30.6	484,869	34.7
\$100,000 to \$1,000,000	7	434	49.0	1,579,562	53.6	652,738	46.7
	94	885	100.0	\$2,944,888	100.0	\$1,398,782	100.0
Los Angeles—							
Less than \$5,000.....	624	461	1.9	\$1,546,486	1.5	\$1,058,858	2.4
\$5,000 to \$20,000.....	734	2,641	11.1	7,723,031	7.5	4,786,663	10.8
\$20,000 to \$100,000....	386	5,445	22.9	16,974,493	16.4	8,879,869	19.9
\$100,000 to \$1,000,000	148	10,254	43.2	39,343,787	38.0	17,273,526	38.8
\$1,000,000 and over.....	19	4,943	20.8	37,870,196	36.6	12,518,281	28.1
	1,911	23,744	100.0	\$108,457,993	100.0	\$44,517,197	100.0
Oakland—							
Less than \$5,000.....	219	164	2.1	\$552,976	1.9	\$383,070	2.8
\$5,000 to \$20,000.....	177	507	6.6	1,760,785	6.2	1,095,939	8.1
\$20,000 to \$100,000....	129	1,467	19.0	5,419,867	19.0	2,811,520	20.8
\$100,000 to \$1,000,000	42	3,056	39.7	12,943,914	45.4	5,376,523	39.8
\$1,000,000 and over.....	6	2,512	32.6	7,844,286	27.5	3,855,516	28.5
	573	7,706	100.0	\$28,521,828	100.0	\$13,522,568	100.0

¹Includes the group "\$1,000,000 and over."

MANUFACTURES IN THE TWENTY-ONE LEADING CITIES IN 1914—Continued.

(From the Census Bureau.)

Number of Establishments, Wage Earners, and Value of Products—Continued.

City and value of product	Number of establishments	Wage earners		Value of products		Value added by manufacture	
		Average number	Per cent of total	Amount	Per cent of total	Amount	Per cent of total
Pasadena—							
Less than \$5,000.....	46	32	6.0	\$110,540	5.6	\$83,961	7.6
\$5,000 to \$20,000.....	53	207	38.6	549,540	27.9	376,081	34.1
\$20,000 to \$100,000.....	15	166	31.0	652,263	33.1	345,101	31.3
\$100,000 to \$1,000,000.....	4	131	24.4	659,548	33.4	297,346	27.0
	118	536	100.0	\$1,971,891	100.0	\$1,102,489	100.0
Pomona—							
Less than \$5,000.....	27	26	8.1	\$63,046	7.6	\$43,662	8.7
\$5,000 to \$20,000.....	19	71	22.0	183,272	22.2	130,618	26.1
\$20,000 and over ¹	8	225	69.9	578,682	70.1	326,212	65.2
	54	322	100.0	\$825,000	100.0	\$500,492	100.0
Redlands—							
Less than \$5,000.....	11	10	9.3	\$20,840	4.0	\$13,222	4.3
\$5,000 to \$20,000.....	9	27	25.2	62,984	12.1	41,609	13.6
\$20,000 and over ²	8	70	65.4	437,747	83.9	252,216	82.1
	28	107	100.0	\$521,571	100.0	\$307,047	100.0
Riverside—							
Less than \$5,000.....	25	23	2.7	\$67,766	2.9	\$45,750	3.5
\$5,000 to \$20,000.....	29	92	11.0	290,193	12.6	171,244	14.1
\$20,000 and over ³	15	723	86.3	1,949,267	84.5	997,154	82.1
	69	838	100.0	\$2,307,226	100.0	\$1,214,148	100.0
Sacramento—							
Less than \$5,000.....	75	63	1.2	201,003	1.2	132,637	1.8
\$5,000 to \$20,000.....	80	244	4.6	795,658	4.9	459,866	6.3
\$20,000 to \$100,000.....	60	674	12.6	2,560,429	15.6	1,258,394	17.2
\$100,000 and over ¹	21	4,353	81.6	12,825,580	78.3	5,481,869	74.8
	236	5,334	100.0	\$16,382,670	100.0	\$7,332,766	100.0
San Bernardino—							
Less than \$5,000.....	18	8	0.7	\$41,407	1.6	\$29,075	2.4
\$5,000 to \$20,000.....	21	69	6.4	196,947	7.5	118,200	9.9
\$20,000 and over ³	15	1,000	92.9	2,374,315	90.9	1,045,069	87.6
	54	1,077	100.0	\$2,612,669	100.0	\$1,192,344	100.0
San Diego—							
Less than \$5,000.....	89	89	4.3	\$236,282	2.6	\$159,096	3.6
\$5,000 to \$20,000.....	93	366	17.8	926,905	10.3	575,109	13.0
\$20,000 to \$100,000.....	53	707	34.3	2,260,828	25.1	1,088,157	24.5
\$100,000 and over ¹	22	898	43.6	5,596,880	62.0	2,616,553	58.9
	257	2,060	100.0	\$9,020,895	100.0	\$4,438,915	100.0
San Francisco—							
Less than \$5,000.....	632	493	1.6	\$1,645,270	1.0	\$1,161,884	1.8
\$5,000 to \$20,000.....	830	2,848	9.0	8,735,399	5.4	5,593,623	8.6
\$20,000 to \$100,000.....	605	7,488	23.6	26,513,383	16.3	14,179,964	21.7
\$100,000 to \$1,000,000.....	237	13,561	42.7	64,067,171	39.5	25,697,121	39.4
\$1,000,000 and over.....	30	7,368	23.2	61,338,572	37.8	18,626,825	28.5
	2,334	31,758	100.0	\$162,299,795	100.0	\$65,259,417	100.0
San Jose—							
Less than \$5,000.....	92	62	3.1	\$233,909	2.2	\$169,981	4.6
\$5,000 to \$20,000.....	73	214	10.5	729,663	6.8	452,546	12.4
\$20,000 to \$100,000.....	38	353	17.4	1,680,433	15.6	760,669	20.8
\$100,000 and over ¹	22	1,400	69.0	8,162,112	75.5	2,277,308	62.2
	225	2,029	100.0	\$10,806,117	100.0	\$3,660,504	100.0

¹Includes the group "\$1,000,000 and over."²Includes the group "\$100,000 to \$1,000,000."³Includes the groups "\$100,000 to \$1,000,000" and "\$1,000,000 and over."

MANUFACTURES IN THE TWENTY-ONE LEADING CITIES IN 1914—Continued.
(From the Census Bureau.)

Number of Establishments, Wage Earners, and Value of Products—Continued.

City and value of product	Number of establishments	Wage earners		Value of products		Value added by manufacture	
		Average number	Per cent of total	Amount	Per cent of total	Amount	Per cent of total
Santa Barbara—							
Less than \$5,000.....	14	11	4.0	\$34,880	4.1	\$23,452	4.6
\$5,000 to \$20,000.....	17	58	21.0	185,254	22.0	110,675	21.6
\$20,000 to \$100,000.....	16	207	75.0	623,539	73.9	377,250	73.8
	47	276	100.0	\$843,673	100.0	\$511,377	100.0
Santa Cruz—							
Less than \$5,000.....	39	33	8.2	\$97,996	7.4	\$62,395	10.8
\$5,000 to \$20,000.....	29	103	25.7	277,182	21.0	172,344	29.9
\$20,000 to \$100,000.....	7	54	13.5	331,731	25.1	136,601	23.7
\$100,000 to \$1,000,000	4	211	52.6	613,518	46.5	204,240	35.5
	79	401	100.0	\$1,320,427	100.0	\$575,580	100.0
Stockton—							
Less than \$5,000.....	48	39	2.0	\$125,232	1.1	\$83,790	2.2
\$5,000 to \$20,000.....	64	202	10.5	613,272	5.4	352,456	9.1
\$20,000 to \$100,000.....	28	367	19.1	1,191,140	10.5	657,768	17.0
\$100,000 and over ¹	17	1,311	68.3	9,363,839	82.9	2,767,254	71.7
	157	1,919	100.0	\$11,293,483	100.0	\$3,861,268	100.0
Vallejo—							
Less than \$5,000.....	4	3	1.0	\$7,850	0.3	\$5,151	0.5
\$5,000 to \$20,000.....	16	67	22.9	188,242	6.1	115,409	11.2
\$20,000 and over ¹	9	222	76.0	2,875,827	93.6	905,437	88.2
	29	292	100.0	3,071,919	100.0	1,025,997	100.0

¹Includes the group "\$1,000,000 and over."

PART XIII.

**PETROLEUM, NATURAL GAS, GASOLINE,
MINERALS AND MINERAL SPRINGS.**

**Petroleum by Counties and Fields; Oil Land Situation in California;
Production 1890-1917; Production in Other States; Imports and
Exports 1917; Natural Gas; Gasoline; Minerals 1904-1916; Produc-
tion of Minerals by Counties; Mineral Springs.**

PETROLEUM.*

The existence of petroleum in California has long been known. The native Indians used it in the form of asphaltum for various purposes, and it was utilized by the Catholic fathers for roofing their missions and other buildings. For nearly half a century Russia was the largest producer of petroleum in the world, but now occupies the second place, the first being held by California.

Duration of Oil Fields.

The National Conservation Committee in 1908 estimated the petroleum area in California as 850 square miles, and the natural gas area as 310 square miles.

A vast system of pipe lines has been constructed from the various fields to the coast, the total length being upwards of 1,782 miles. The principal pipe lines are owned by six large companies. The Standard Oil Company lines serve the San Joaquin Valley, Los Angeles and Orange counties, Ventura and Santa Barbara counties, or about 464 miles. The Producers' Transportation Company serves the San Joaquin Valley, with 221 miles. The Union Oil company serves Santa Barbara, Ventura, Los Angeles and Orange counties with a total length of about 160 miles.

The Associated Pipe Line Company goes from the Kern River and Sunset fields to Port Costa, a total of 559 miles. The Associated Oil Company pipe lines go from Coalinga to Monterey, and from Santa Maria to Gaviota, or 171 miles. The General Pipe Line Company carries oil from Sunset to Los Angeles, with a branch line to Mojave. It crosses the Tehachapi Mountains at a height of 4,215 feet above sea level, and is 207 miles in length.

Petroleum Reserves in California.

Two reserves of public lands have been established to assure the Navy a supply of oil in case of need. These reserves are in Elk Hills and the Buena Vista Hills, Kern County. The public lands within these areas have been withdrawn from all forms of entry during the last few years, and in 1912 a special reservation for naval purposes was made.

*For the early development of California oil fields, see Report for 1913, pages 176, 177, and 1914, pages 162-167.

The Oil Land Situation in California in 1917.*

The total acreage in the withdrawn area is now 1,252,166, 108,948 acres having been restored during the year. Of this, about 862,000 acres are patented; 34,206.36 acres are in pending mineral entries; about 84,000 acres are embraced in agricultural entries; and about 348,000 acres are vacant or embraced in entries under the act of July 17, 1914. Of the 140 pending mineral applications, adverse proceedings have been directed against 99, involving 24,850.88 acres; in 28 cases, embracing 4,434.84 acres, the proceedings are on the dummy charge; in 22 cases, with an acreage of 6,125.15, the charge has been made that the claimants had not made a discovery or were not in diligent prosecution of work leading thereto at the date of withdrawal; in 39 cases, covering 11,434.37 acres, the proceedings are on both the dummy and withdrawal charges; and in 10 cases, involving 2,851.52 acres, there are other charges, principally absence of discovery. Hearings have been had in 6 cases, involving 901.73 acres, and these six cases are now pending either in the General Land Office or the department in different stages of action.

As to the cases involving lands in naval reserves, there are two entries covering 961.68 acres involved in private contests; 7 entries with an acreage of 1,758.96 are involved in adverse suits under section 2326 of the Revised Statutes; 13 entries for 3,326.79 acres are pending action on reports of special agents; and in 7 cases, with an acreage of 1,090.21 we are awaiting reports.

Seven cases in naval reserve No. 1 are pending on adverse proceedings and 20 in naval reserve No. 2. The figures given above regarding adverse proceedings include those in naval reserves.

The following statistics relative to the trespass suits may be of interest:

In naval reserve No. 1 there are two pending suits, involving 320 acres; in naval reserve No. 2 46 suits, involving 8,184.49 acres; a total of 48 suits, with an acreage of 8,508.49. Outside of the naval reserves there are 23 suits, involving 4,598.91 acres. The total of oil trespass suits in California is 71 and the acreage 13,107.40.

The Southern Pacific suits have no connection whatever with the withdrawal suits. One suit known as the Elk Hills case involved 6,109 acres run by the government, but is now on appeal. Eight other cases embracing 163,654 acres, some of which are among the most valuable oil lands in California, and involves many million of dollars.

California Largest Producer.

California still maintains the lead as the largest producer of petroleum in the United States. In the world's production the United States has been first for many years, and Russia, which was formerly first, now occupies the second place, Mexico being third. In 1916, the production in the United States was 300,767,000 barrels, Russia 72,801,000, and Mexico 39,817,000 barrels.

*Report of the Commissioner of the General Land Office, Washington, dated June 30, 1917.

As a result of the overproduction in 1914, which amounted to 103,623,000 barrels, the field activity in California was reduced to the lowest practicable minimum in 1915, the estimated production being about 89,000,000 barrels. The extent of proved oil land in California 1916, as determined by the State Mining Bureau, is 138 square miles, or 86,479 acres, of which 56,122 acres are in Kern County alone. Fresno County is second on the list with 12,703 acres, and Santa Barbara County third with 9,808 acres. The other counties in order of their rank are Orange, Los Angeles, Ventura, San Luis Obispo, and Santa Clara. The increase in the proved oil land area as compared to the 1915 figures was principally in Santa Barbara County in the vicinity of Casmalia and at the Bell ranch, near Santa Maria.

Proved Oil Land, 1917.

In the accompanying tabulation the proven area of the California oil fields is shown as 88,745 acres, equivalent to 138.66 square miles. In determining the figures the boundary lines of the proven area are drawn 200 feet or 300 feet outside the proven field. In case of outlying single wells the field is credited with about fifteen acres.

The figures therefore represent the actual proven area, and give no consideration to territory that is generally regarded as proven but is not fully drilled. For instance, large areas of undrilled territory in the Buena Vista Hills, although regarded as proven, are not included in the following tabulation.

The proven acreage as shown is, therefore, low as compared with figures made by others. Other estimates have run as high as 110,000 acres, or 171.88 square miles.

Total Production, Area, and Production Per Acre, of California Oil Fields to December 31, 1917.*

Field	Proven acreage	Total production to Dec. 31, 1917 (barrels)	Total barrels per acre to Dec. 31, 1917
Kern River	7,730	198,645,210	25,696
McKittrick	1,635	52,114,761	31,874
Midway-Sunset	40,204	291,822,154	7,259
Lost Hills-Belridge	4,476	28,426,055	6,351
Coalinga	14,771	196,872,731	13,328
Lompoc and Santa Maria	7,710	80,913,461	10,495
Ventura County and Newhall	4,514	19,924,745	4,414
Los Angeles and Salt Lake	2,700	52,902,331	19,593
Whittier-Fullerton	4,575	115,584,105	25,264
Summerland	230	2,180,334	9,480
Miscellaneous	†200	964,727	4,824
Totals	88,745	1,040,350,614	11,723

*Estimated by the Standard Oil Company.

†Estimated.

The acreage of the various oilfields in 1916 was as follows:

County	Acres	County	Acres
Fresno -----	12,708	Santa Barbara -----	9,808
Kern -----	56,122	San Luis Obispo -----	772
Los Angeles -----	2,174	Santa Clara -----	80
Orange -----	3,297		
Ventura -----	1,523	Total -----	86,479

Production and Value of Oil (Barrels) by Counties, 1815-1916.

(From the California State Mining Bureau.)

County	1915		1916	
Fresno -----	14,021,025	\$7,641,459	14,594,246	\$7,530,631
Kern -----	54,810,669	23,184,913	54,120,509	34,691,246
Los Angeles -----	2,931,098	1,843,661	2,875,468	1,871,930
Orange -----	12,715,457	6,510,314	13,196,591	8,750,666
San Luis Obispo -----			11,670	5,252
Santa Barbara -----	5,634,534	3,442,700	4,502,206	3,574,732
Santa Clara -----	16,617	11,067	16,368	10,901
Ventura -----	1,017,220	869,723	943,499	985,956
Totals -----	91,146,620	\$43,503,837	90,262,557	\$57,421,334

Average Price of Oil, by Counties, in Cents per Barrel, 1914-1916.

County	1914	1915	1916
Fresno -----	45.2¢	54.5¢	51.6¢
Kern -----	40.9¢	42.3¢	64.1¢
Los Angeles -----	55.0¢	62.9¢	65.1¢
Orange -----	67.5¢	51.2¢	66.3¢
Santa Barbara -----	46.0¢	61.1¢	79.4¢
Santa Clara -----	53.0¢	66.6¢	66.6¢
Ventura -----	105.0¢	85.5¢	104.5¢
State average -----	46.1¢	47.9¢	63.6¢

Production by Fields, 1913-1916.

(Barrels 42 gallons.)

Field	1913	1914	1915	1916
Kern River -----	10,499,509	7,227,422	8,034,974	8,402,525
McKittrick -----	4,520,549	3,871,352	3,552,801	3,230,644
Midway-Sunset -----	39,277,370	49,408,493	39,318,093	38,925,476
Lost Hills-Belridge -----	5,272,630	4,825,366	4,318,550	4,852,431
Coalinga -----	18,696,110	15,952,190	13,548,159	14,381,493
Santa Maria-Lompoc -----	4,843,683	4,266,387	4,536,840	4,422,410
Ventura County-Newhall -----	1,009,633	943,929	1,036,305	1,122,033
Los Angeles-Salt Lake -----	2,942,684	2,456,937	2,110,133	1,721,453
Whittier-Fullerton -----	10,685,146	13,860,431	13,030,549	14,679,672
Summerland -----	59,400	59,400	53,000	56,775
Watsonville -----	20,000	10,000	27,375	27,450
Totals -----	97,776,714	102,881,907	89,566,779	91,822,362

CALIFORNIA CRUDE OIL PRODUCTION FOR THE YEAR 1917.

Summary of Field Operations and Production, 1917.*

California's total production of crude oil in 1917 was 97,267,832 barrels, an increase of 5,445,470 barrels over 1916. However, this production was 11,585,725 barrels less than the market requirements, as represented by shipments.

This discrepancy was the amount of stock decrease for the year.

Field	Rigs completed during year	Wells		Production	
		Completed during year	Abandoned during year	For year	Per day
Kern River	27	40	3	8,495,610	23,276
McKittrick	31	26	1	3,252,544	8,911
Midway-Sunset	314	282	19	36,560,145	100,165
Lost Hills-Belridge	163	132	4	6,295,329	17,247
Coalinga	142	114	30	15,938,543	43,667
Lompoc and Santa Maria	102	63	5	5,798,070	15,885
Ventura County and Newhall	47	22	9	1,186,407	3,250
Los Angeles and Salt Lake	2	1	10	1,501,799	4,115
Whittier-Fullerton	95	56	11	18,155,440	49,741
Summerland				56,570	155
Watsonville				27,375	75
Totals	923	736	92	97,267,832	266,487

Total crude oil stocks, December 31, 1916..... 44,036,190 bbls.

Total crude oil stocks, December 31, 1917..... 32,450,465 bbls.

Decrease during year..... 11,585,725 bbls.

Daily decrease during year..... 31,742 bbls.

*From the Standard Oil Bulletin.

The proportion of heavy and light oil produced in the various fields is shown by the following figures: Oil below 18° Baumé may be considered as largely unrefinable, or fuel, oil; while the lighter oils yield varying amounts of refined products and a very large proportion of residuum or fuel oil. A very few years ago, the total amount of heavy oil was in excess of the light oil.

Production of Light and Heavy Oils by Fields in 1917.

Field	Under 18°, barrels	18° and over, barrels	Totals, barrels
Kern River	8,402,525		8,402,525
McKittrick	3,230,644		3,230,644
Midway-Sunset	10,888,960	28,036,496	38,925,456
Lost Hills-Belridge	578,018	4,274,413	4,852,431
Coalinga	5,807,685	8,573,808	14,381,493
Lompoc and Santa Maria	834,945	3,587,465	4,422,410
Ventura County and Newhall	107,698	1,014,335	1,122,033
Los Angeles and Salt Lake	1,624,273	97,180	1,721,453
Whittier-Fullerton	270,454	14,409,218	14,679,672
Summerland	56,775		56,775
Watsonville		27,450	27,450
Totals	31,801,997	60,020,365	91,822,362

SUMMARY.

Production of Petroleum in California, 1900-1917.

Year	Barrels of 42 gallons	Value	Year	Barrels of 42 gallons	Value
1900	4,329,950	\$4,152,928	1909	58,191,723	\$32,398,187
1901	7,710,315	2,961,102	1910	73,010,560	35,749,473
1902	14,356,910	4,692,189	1911	78,195,139	40,552,068
1903	24,340,839	7,313,271	1912	90,073,202	43,000,000
1904	29,736,003	8,317,809	1913	98,494,532	48,578,014
1905	34,275,701	9,007,820	1914	102,881,907	47,487,109
1906	32,624,000	9,238,020	1915	91,146,620	43,503,837
1907	40,311,171	16,783,943	1916	90,262,557	57,421,334
1908	48,306,910	26,566,181	1917	97,267,832	

The estimates of the output do not always agree, as some authorities include the quantity used in the field, which amounts to about 5,000,000 gallons annually.

Of the fourteen states now producing petroleum, the date of first production was as follows:

State	Year	Barrels
Pennsylvania and New York	1859	2,000
California	1876	12,000
West Virginia	1876	120,000
Ohio	1876	31,763
Kentucky and Tennessee	1883	4,755
Colorado	1887	76,295
Indiana	1889	33,375
Illinois	1889	1,460
Kansas	1889	500
Texas	1889	48
Missouri	1889	20
Oklahoma	1891	30
Wyoming	1894	2,369
Louisiana	1902	548,617

NATURAL GAS.

Since 1889, when natural gas was first produced and used in California, the natural gas industry has become of great importance, and to the United States belongs the credit of making natural gas a commercial product.

Since the discovery of gas in the Buena Vista Hills, near Taft, in Kern County, the natural gas industry of California has continued to improve.

In 1913 the pipe line from the Midway field to southern California was completed at a great cost, and natural gas was introduced into Los Angeles and other towns and cities in the adjacent territory.

It is estimated that 11,034,597,000 cubic feet of gas, valued at \$1,883,450, or 17.07 cents per thousand cubic feet, was produced in this state and consumed in 1913, as compared with 9,354,428,000 cubic feet valued at \$1,134,456, or 12.13 cents per thousand cubic feet in 1912. The wells with greatest capacity and highest pressure are located in Kern County, where at the close of 1913 there were 27 gas wells, which range in depth from 1,600 to 2,782 feet, and have a pressure of from 250 to 960 pounds. Considerable gas is produced from the oil wells of

Orange and Santa Barbara counties, where it is largely used for field purposes, and as this gas is very rich in gasoline, several plants have been installed in these counties for the production of gasoline, which has become an important industry in this state. The value of gas as here shown is open to considerable question, but is certainly not too high. The average price is about 6 cents per 1,000 cubic feet. Seven thousand cubic feet of gas is about equal to one barrel of oil in heating value.

Natural Gas, 1916.

County	Thousand cubic feet	Value
Fresno	2,346,917	\$163,941
Kern	16,679,658	1,379,033
Kings	258	608
Los Angeles	2,063,664	139,522
Orange	2,278,922	139,281
San Joaquin	182,441	141,605
Santa Barbara	3,660,410	724,746
Ventura	806,540	133,867
Humboldt, Sacramento, Solano, and Tehama*	95,555	49,148
Totals	28,134,365	\$2,871,751

*Combined to conceal an individual producer in each.

Natural Gas Produced in California, 1905-1916.

Year	Value	Year	Value
1905	\$102,479	1912	\$940,076
1906	109,489	1913	1,053,292
1907	114,759	1914	1,049,470
1908	474,584	1915	1,706,480
1909	616,932	1916	2,871,751
1910	1,676,367		
1911	491,859	Total	\$12,342,655

Gasoline.

The largest natural gas field of commercial importance thus far developed in California is in the Midway district, followed by Santa Barbara, Orange and Los Angeles counties, in the order named. The Southern California Gas Company operates a 12-inch pipe line from the Midway field, a distance of 107 miles, to Los Angeles, where it supplies gas to local distributing companies. The Valley Natural Gas Company supplies gas to consumers in the Midway field and to local distributing companies at Fellows, Taft, Maricopa, Bakersfield, and the Kern River fields. The Santa Maria Gas and Power Company distributes gas around Santa Maria, from wells in the neighboring oil fields.

There were in operation in 1916 a total of 31 plants making casing-head gasoline by compression, with a total daily capacity estimated at 61,400 gallons, distributed as follows:

Field	Number plants	Gallons daily
Coalinga	1	2,000
Whittier-Fullerton	9	15,850
Midway	8	16,700
Santa Maria	7	19,900
Salt Lake (Los Angeles)	3	3,600
Ventura	3	3,350
Totals	31	61,400

At Santa Maria, after the gasoline is extracted, the remaining "dry gas" is taken into the pipe lines of the Santa Maria Gas and Power Company, by whom it is distributed to consumers, both domestic and commercial.

Imports of Petroleum, Crude and Refined, 1900-1917.

Year	Free gallons	Value	Dutiable gallons	Value
1900	2,354,720	\$217,405	19,509	\$3,042
1910	13,698,228	609,400	*2,156	644
1911	38,775,884	2,143,661		
1912	160,502,114	3,654,453		
1913	529,737,973	9,216,980		
1914	791,137,399	13,665,940		
1915	662,185,502	9,790,932		
1916	871,473,103	12,512,229		
1917	1,078,820,935	17,839,976		

*From July 1 to August 5. All mineral oils became free on August 6, 1909. Note the enormous increase to 529,737,973 gallons in 1913, after being placed on the free list.

Imports of Petroleum in 1917.

	1916		1917	
	Gallons	Value	Gallons	Value
Crude	869,369,363	\$12,205,762	1,034,590,849	\$14,109,035
Benzine, gasoline, and naphtha	7,738	2,608	10,804,864	1,402,275
All others	2,096,002	303,859	33,425,222	2,328,666
Totals	871,473,103	\$12,512,229	1,078,820,935	\$17,839,976

Exports of Domestic Petroleum, 1916-1917.

	1916		1917	
	Gallons	Value	Gallons	Value
Mineral, crude, including all natural oils, without regard to gravity -----	163,732,589	\$5,754,084	176,368,675	\$7,162,550
Refined or manufactured--				
Illuminating oil -----	823,143,138	52,283,057	835,114,403	54,662,094
Lubricating and heavy paraffin oil -----	250,395,439	37,452,084	271,028,546	48,649,557
Gas oil and fuel oil -----	897,858,733	24,769,248	1,040,671,713	32,473,872
Naphthas and all lighter products of distillation:				
Gasoline -----	100,148,554	16,297,561	226,185,730	46,936,510
All other -----	194,631,255	29,472,713	199,517,400	41,034,753
Residuum, tar, and all from which the light bodies have been distilled:				
All others -----	13,538,335	388,175	551,967	33,813
Totals -----	2,443,448,043	\$166,416,922	2,749,438,434	\$230,953,149

*These totals are subject to revision, being taken from the preliminary returns.

It may be noted that although the production of petroleum in this country has developed into such huge quantities, the imports are very considerable and increasing.

The quantity of domestic oil exported from the United States is enormous, and has increased from 967,262,000 gallons in 1900 to 2,749,438,434 gallons in 1917, and the value has increased during this period from \$68,247,000 to \$230,953,149.

MINERALS IN CALIFORNIA.*

California is rich in minerals, but as yet comparatively little has been done, with the exception of gold mining, and in more recent years in the petroleum fields, to develop its vast resources. The great difficulty in the way of opening up some of these valuable deposits is the want of transportation facilities.

Borax, magnesite, and chrome production in the United States come solely from California. Eighty per cent of the domestic supply of quicksilver and platinum is mined in this state. The value of the total mineral output for 1916 was \$147,901,610, and the estimated value for 1917 amounts to \$142,000,000.

In 1917 there were fifty different mineral substances, and of the 58 counties all but Alpine and Sutter, contributed some mineral product.

Among the most important mineral products of California are its fuels. This subdivision includes coal, natural gas and petroleum, the combined values of which make up approximately 50 per cent of the

*From the reports of the State Mining Bureau.

state's entire mineral industry. Comparison of values during 1915 and 1916 is shown in the following table:

Substance	1915		1916		Increase + Decrease— Value
	Amount	Value	Amount	Value	
Coal -----	10,299 tons	\$26,662	4,037 tons	\$7,030	\$19,632—
Natural gas ..	21,992,892 Mcu.ft.	1,706,480	28,134,365 Mcu.ft.	2,871,751	1,165,271+
Petroleum	91,146,620 bbls.	43,503,837	90,262,557 bbls.	57,421,334	13,917,497+
Totals		\$45,236,979		\$60,300,115	
Net Increase ..					\$15,063,136+

Mineral output in California during the year 1916 amounted to \$127,901,610 worth of crude materials. There were fifty-two different mineral substances, exclusive of a segregation of the various stones grouped under gems, and of the fifty-eight counties in the state all but one contributed some mineral product.

As compared with the 1915 output, the notable features of 1916 are the continued increases along those lines which have been boosted by war conditions, the enormous increase in petroleum valuation though the quantity showed a decrease of nearly a million barrels, and the decrease of over a million dollars in the gold yield. The result is a net increase in the grand total value of \$31,238,241 over the 1915 total. This is the first time in the history of California that her total mineral yield for a year has passed the one hundred million mark.

Of the metals: Copper increased approximately 15,000,000 pounds in quantity and \$6,559,450 in value. Gold decreased \$1,031,555. Lead, quicksilver, silver and zinc each increased more than a half million in value, while tungsten showed an increase of 150 per cent in quantity and 350 per cent in value, or \$3,566,054.

Petroleum decreased nearly a million barrels in quantity, but the prices per barrel for all grades were raised so materially that the net result was an increase of \$13,917,497 in total value.

Decided gains are shown by some of the structural and industrial materials, such as cement, chromite, granite, lime, magnesite and manganese. Of these, magnesite leads with a nearly fourfold increase, of \$1,028,432.

All of the salines increased, but especially, borax from \$1,663,521 to \$2,409,375 and potash from \$19,391 to \$663,605.

California yields commercially a greater number and variety of mineral products than any other state in the United States, and probably more than any other equal area elsewhere of the earth. Previous to 1916, the total annual value of her output was surpassed by but four other states, they being the great coal and iron producers of east of the Mississippi River. In 1916, because of their enormous increases in copper output, reports indicate that Montana and Arizona have passed California for that year. Of one item, at least, borax, California still remains the sole producer; and until quite recently, was also the sole domestic source of chromite and magnesite. We produce at least 75% of the quicksilver of the United States. For some years, we have been leading all others in gold and platinum; while alternating in the lead with Colorado in tungsten, and with Oklahoma in petroleum.

CALIFORNIA MINERALS IN 1917.

The statistical division of the State Mining Bureau, under the direction of Fletcher Hamilton, State Mineralogist, has made a careful estimate of the mineral production of the state for the year 1917. This estimate is in advance of the actual figures which will be available later. The indications are that the total for all products, metallic and nonmetallic, will reach a figure approximating \$142,000,000, as against a total of \$127,901,610, in 1916, when for the first time in the history of the state it exceeded one hundred millions in value.

The major portion of the increase is due to petroleum, the output of which increased about 7,000,000 barrels in quantity and at least 25 per cent in price per barrel. Gold fell off slightly on account of the labor scarcity and the higher costs of supplies. Of the other important metals: tungsten and zinc apparently decreased about one-half in value; silver a slight decrease in amount but an increase in value, because of higher prices; copper increased to about 57,000,000 pounds and \$15,000,000; lead more than doubled in value; quicksilver increased to at least 23,000 flasks and \$2,200,000. The price of this last-named metal closed the year on a firm market at \$115 per flask. As to chromite, magnesite and manganese, it is too early yet to obtain definite data as to the amounts, but all three will show material increases, and it seems likely that their total value will reach at least \$3,800,000, an increase of over \$1,000,000.

The estimated values for 1917 are tabulated as follows:

\$21,000,000 gold.
 1,700,000 silver.
 2,000,000 tungsten.
 15,000,000 copper.
 2,000,000 lead.
 1,000,000 zinc.
 2,200,000 quicksilver.
 100,000 antimony, iron, molybdenum, platinum.
 72,700,000 petroleum.
 3,800,000 chromite, magnesite, manganese ore.
 2,000,000 natural gas.
 13,000,000 brick, cement, building stone, crushed rock, etc.
 1,500,000 miscellaneous "industrial" materials.
 4,000,000 salines.

\$142,000,000 total.

SUMMARY OF SOME SELECTED MINERAL PRODUCTS.

(Compiled from the reports of the State Mining Bureau.)

Gold, 1894-1917.

Year	Value	Year	Value
1894	\$13,923,281	1906	\$18,732,452
1895	15,334,317	1907	16,727,928
1896	17,181,562	1908	18,761,559
1897	15,871,401	1909	20,237,870
1898	15,906,478	1910	19,715,440
1899	15,336,031	1911	19,738,908
1900	15,863,355	1912	19,713,478
1901	16,989,044	1913	20,406,958
1902	16,910,320	1914	20,775,000
1903	16,471,264	1915	22,442,296
1904	19,109,600	1916	21,410,741
1905	19,197,043	1917 (estimated)	21,000,000

Gold is more widely distributed than any other substance thus far mined in California, twenty-eight counties out of the fifty-eight in the state showing a gold yield in 1916 and gold is known to exist in several others. Gold was discovered by James W. Marshall, on January 24, 1848, at Sutter's Mill, near Coloma, El Dorado County. The value of the gold produced since that year, until 1916, amounts to about \$1,652,594,437.

Amador, Yuba, and Nevada each produced gold of a value exceeding \$3,000,000 in 1916, Sacramento being fourth with a production of \$1,833,855.

Silver, 1904-1917.

Year	Value	Year	Value
1904 -----	\$873,525	1911 -----	\$673,336
1905 -----	678,494	1912 -----	799,584
1906 -----	817,830	1913 -----	832,553
1907 -----	751,646	1914 -----	814,230
1908 -----	873,057	1915 -----	851,129
1909 -----	896,250	1916 -----	1,687,345
1910 -----	993,646	1917 (estimated) -----	1,700,000

The total value of silver obtained 1887-1917 is estimated at \$25,402,496. The average price for the year 1914 was 54.8 cents per ounce; in 1915 it averaged 50.7 cents; in 1916 it ranged from 54 cents in January to 75 cents in May. In 1917 it went up still higher.

Silver is found in twenty-eight counties, Shasta being the leading producer, and Inyo County second.

Quicksilver, 1904-1917.

Year	Flasks	Value	Year	Flasks	Value
1904 -----	28,876	\$1,086,323	1911 -----	19,109	\$879,205
1905 -----	24,655	886,081	1912 -----	20,600	866,024
1906 -----	19,516	712,334	1913 -----	15,661	630,042
1907 -----	17,879	663,178	1914 -----	11,373	557,846
1908 -----	18,039	763,520	1915 -----	14,199	1,157,449
1909 -----	16,217	773,788	1916 -----	21,427	2,003,425
1910 -----	17,665	799,002	1917 (estimated) -----		2,200,000

For many years California has been, and still is, producing from 70 per cent to 80 per cent of the quicksilver yield of the United States. This metal is absolutely essential from a military standpoint, as there has not yet been produced a commercial substitute for it in the manufacture of fulminating caps for explosives.

The returns on the production of quicksilver in California for the calendar year 1916 show a considerable increase both in quantity and value over previous years. The total number of flasks (containing 75 pounds) amounted to 21,427. The quotations varied from the high level of \$300 per flask in February to an average around \$75 for the last six months of the year. Because of the rapid fluctuations in prices during the first six months, quotations did not always mean sales. The actual sales by the producers average but \$93.50, and in 1917 was \$110. Nearly 50 per cent of the above total came from San Benito

County, with about 20 per cent from Santa Clara County, and the balance made up of smaller amounts, from Lake, Napa, San Luis Obispo, Monterey, Solano, and a few others.

With the exception of a small tonnage of chrome from Oregon in 1916, and of magnesite from Washington in 1917, California has been the sole source of these two minerals in the United States.

California is one of the two main producing tungsten states of the Union. This metal is especially valuable in the manufacture of alloys for highspeed tool steels. The annual value of tungsten produced in California, mostly from San Bernardino County, is given herewith:

Tungsten, 1905-1916.

Year	Value	Year	Value
1905 -----	\$18,800	1912 -----	\$206,000
1906 -----	189,100	1913 -----	234,673
1907 -----	120,587	1914 -----	180,575
1908 -----	37,750	1915 -----	1,005,467
1909 -----	190,500	1916 -----	4,571,521
1910 -----	208,245		
1911 -----	127,706	Total -----	\$7,090,924

Borax, 1904-1916.

Year	Tons	Value	Year	Tons	Value
1904 -----	91,294	\$698,810	1911 -----	50,945	\$1,456,672
1905 -----	97,068	1,619,158	1912 -----	42,135	1,122,713
1906 -----	116,346	1,182,410	1913 -----	58,051	1,491,530
1907 -----	106,825	1,200,913	1914 -----	62,500	1,483,500
1908 -----	44,400	1,117,000	1915 -----	67,004	1,663,521
1909 -----	33,257	1,163,960	1916 -----	103,523	2,409,375
1910 -----	33,656	1,177,960			

California is the only state in America producing borax. Most of the deposits are in the desert portions of California, located largely in Inyo, Kern, Riverside, Imperial, and San Bernardino counties.

Magnesite, 1904-1916.

Year	Tons	Value	Year	Tons	Value
1904 -----	2,850	\$9,298	1911 -----	8,858	\$67,430
1905 -----	3,933	16,221	1912 -----	10,512	105,120
1906 -----	4,032	40,320	1913 -----	9,632	77,056
1907 -----	6,405	57,720	1914 -----	11,438	114,380
1908 -----	10,582	80,822	1915 -----	30,721	283,461
1909 -----	7,942	62,588	1916 -----	154,062	1,311,893
1910 -----	16,570	113,887			

Magnesite is found in Tulare, Fresno, Santa Clara, Napa, Sonoma, and Fresno counties.

Platinum, 1904-1916.

Year	Ounces	Value	Year	Ounces	Value
1904 -----		\$1,849	1911 -----	511	\$14,873
1905 -----	200	3,320	1912 -----	603	19,781
1906 -----	91.46	1,647	1913 -----	366	17,788
1907 -----	300.07	6,255	1914 -----	463	14,816
1908 -----	706	13,414	1915 -----	667	21,149
1909 -----	416	10,400	1916 -----	886	42,642
1910 -----	337	8,386			

The leading counties in the production of platinum are Yuba, Sacramento, and Trinity counties.

Salt, 1904-1916.

Year	Tons	Value	Year	Tons	Value
1904 -----	95,968	\$187,300	1911 -----	173,332	\$324,255
1905 -----	77,118	141,925	1912 -----	185,721	383,370
1906 -----	101,650	213,228	1913 -----	204,407	462,681
1907 -----	88,063	310,967	1914 -----	223,806	583,553
1908 -----	121,764	281,469	1915 -----	169,028	368,737
1909 -----	155,680	414,708	1916 -----	186,148	455,695
1910 -----	174,920	395,417			

Salt is produced by eleven counties, Alameda being the largest producer, with 111,206 tons; and San Mateo, 28,540 tons.

Lead, 1911-1917.

Year	Tons	Value	Year	Tons	Value
1911 -----	701	\$63,173	1915 -----	2,398	\$225,426
1912 -----	685	61,653	1916 -----	6,196	855,049
1913 -----	1,820	160,202	1917 -----		2,000,000
1914 -----	2,349	183,198			

The principal yield of lead was from Inyo, 11,185,321 pounds; San Bernardino, 673,801 pounds; and Shasta, 478,560 pounds.

Manganese.

In 1915 the production of manganese ore was 4,013 tons, valued at \$49,098; and in 1916, 13,404 tons, valued at \$274,601. San Joaquin produced about one-half of this total, or 6,493 tons.

Bituminous Rock, 1904-1916.

Year	Tons	Value	Year	Tons	Value
1904 -----	45,280	\$175,680	1911 -----	75,125	\$117,279
1905 -----	24,753	60,436	1912 -----	44,073	87,467
1906 -----	16,077	45,204	1913 -----	37,541	78,479
1907 -----	24,122	72,385	1914 -----	66,119	166,618
1908 -----	30,718	109,818	1915 -----	17,789	61,468
1909 -----	34,123	116,436	1916 -----	19,449	66,561
1910 -----	87,547	165,711			

The counties which produced bituminous rock are: Santa Cruz and San Luis Obispo. The manufacture of asphalt at the oil refineries has almost eliminated this industry.

Coal, 1904-1916.

Year	Tons	Value	Year	Tons	Value
1904 -----	79,062	\$376,494	1911 -----	11,047	\$18,297
1905 -----	46,500	144,500	1912 -----	14,848	39,092
1906 -----	24,850	61,600	1913 -----	25,198	85,809
1907 -----	23,784	55,849	1914 -----	11,859	28,806
1908 -----	18,496	55,503	1915 -----	10,299	26,662
1909 -----	49,389	216,913	1916 -----	4,037	7,030
1910 -----	11,033	23,484			

The quality of the coal is not high, most of it being lignite. During 1915 there was a production reported in Amador, Contra Costa and Monterey counties, amounting to 10,299 tons, most of it being from Amador and Monterey.

Copper, 1904-1917.

Year	Pounds	Value	Year	Pounds	Value
1904 -----	29,974,154	\$3,969,995	1911 -----	36,838,024	\$4,604,753
1905 -----	16,997,489	2,650,605	1912 -----	34,169,997	5,638,049
1906 -----	28,726,449	5,522,712	1913 -----	34,471,118	5,343,023
1907 -----	32,602,945	6,341,387	1914 -----	30,491,535	4,055,375
1908 -----	40,868,772	5,350,777	1915 -----	40,968,966	7,169,567
1909 -----	65,727,736	8,478,142	1916 -----	55,809,019	13,729,017
1910 -----	53,721,032	6,680,641	1917 (estimated) -----	-----	15,000,000

Copper was produced in twenty-four counties in 1916, Shasta being by far the largest, producing 39,000,000 pounds of the total amount, smaller amounts coming from Calaveras, Placer, Plumas, and San Bernardino counties.

Iron, 1910-1916.

Year	Tons	Value	Year	Tons	Value
1910 -----	579	\$900	1914 -----	1,436	\$5,128
1911 -----	558	558	1915 -----	724	2,584
1912 -----	2,508	2,508	1916 -----	3,000	6,000
1913 -----	2,343	4,485			

The ore produced in 1915 was utilized in the production of ferro-manganese and ferro-chrome by electric furnace reduction. There are considerable deposits of iron ore in Shasta, Madera, and San Bernardino counties, but the production has never amounted to much on account of our having no economic supply of coking coal.

Value of California Mineral Production, by Counties, for 1916, Arranged in the Order of Their Importance.

County	Value	County	Value
1. Kern	\$37,826,907	31. Mariposa	\$487,971
2. Shasta	13,639,506	32. Sonoma	472,048
3. Orange	8,905,086	33. El Dorado	470,687
4. Fresno	8,061,193	34. San Joaquin	468,862
5. San Bernardino	6,569,147	35. San Diego	397,166
6. Inyo	4,600,086	36. Humboldt	274,895
7. Santa Barbara	4,535,029	37. Stanislaus	253,022
8. Los Angeles	4,463,045	38. San Luis Obispo	245,807
9. Amador	3,811,428	39. Mono	240,990
10. Nevada	3,744,143	40. Madera	222,758
11. Yuba	3,237,828	41. Lake	180,996
12. Calaveras	2,965,592	42. Marin	178,306
13. Sacramento	2,178,674	43. San Mateo	135,408
14. Santa Cruz	1,679,111	44. Monterey	109,872
15. Plumas	1,399,335	45. Imperial	105,333
16. Butte	1,356,925	46. Merced	81,530
17. Contra Costa	1,279,060	47. Glenn	81,162
18. Riverside	1,234,252	48. San Francisco	76,437
19. San Benito	1,213,447	49. Mendocino	55,680
20. Solano	1,205,335	50. Tehama	54,353
21. Ventura	1,135,420	51. Colusa	42,803
22. Alameda	1,094,167	52. Kings	26,788
23. Napa	1,078,537	53. Lassen	9,725
24. Placer	1,042,629	54. Sutter	6,450
25. Tuolumne	1,004,262	55. Modoc	3,559
26. Tulare	947,200	56. Del Norte	2,432
27. Santa Clara	851,948	57. Yolo	300
28. Trinity	846,561	58. Alpine	-----
29. Sierra	729,497		
30. Siskiyou	580,896	Total	\$127,901,610

TABLE XLV.

Production of Metals—1915-1916.

(From the California State Mining Bureau.)

Substance	1915		1916		Increase + Decrease— Value
	Amount	Value	Amount	Value	
Antimony ore	510 tons	\$35,668	1,015 tons	\$34,793	\$29,127 +
Asbestos	143 tons	2,860	145 tons	2,380	480—
Barytes	410 tons	620	1,606 tons	5,516	4,896 +
Rituminous rock	17,789 tons	61,468	19,449 tons	68,561	5,093 +
Borax	67,004 tons	1,663,521	108,523 tons	2,409,375	745,854 +
Brick and tile	180,538 M.	1,678,756	206,960 M.	2,066,570	417,814 +
Cement	4,918,275 bbls.	6,044,950	5,299,507 bbls.	6,210,293	165,343 +
Chromite	3,725 tons	38,044	48,943 tons	717,244	679,200 +
Clay—pottery	157,863 tons	133,724	134,636 tons	146,538	12,814 +
Coal	10,299 tons	26,662	4,037 tons	7,030	19,692—
Copper	40,968,963 lbs.	7,169,567	55,809,019 lbs.	13,729,017	6,559,450 +
Dolomite	4,192 tons	14,504	13,313 tons	46,563	32,062 +
Feldspar	1,800 tons	9,000	2,630 tons	14,350	5,350 +
Fuller's earth	692 tons	4,002	110 tons	550	3,452—
Gems		3,565		4,752	1,187 +
Gold		22,442,296		21,410,741	1,031,555—
Granite		227,923		535,339	307,411 +
Graphite			29,190 lbs.	2,885	2,885 +
Gypsum	20,200 tons	48,963	33,384 tons	59,583	10,580 +
Infusorial and diato- maceous earths	12,400 tons	62,000	15,322 tons	80,649	18,649 +
Iron ore	724 tons	2,584	3,000 tons	6,000	3,416 +
Lead	2,398 tons	225,426	6,196 tons	855,049	629,623 +
Lime	356,534 lbs.	298,304	498,635 lbs.	390,475	104,171 +
Limestone	146,324 tons	156,288	187,521 tons	217,733	61,445 +
Lithia	91 tons	1,365	71 tons	1,065	300—
Magnesite	30,721 tons	283,461	154,052 tons	1,811,893	1,028,432 +
Magnesium chloride			851 tons	6,407	6,407 +
Manganese ore	4,013 tons	49,098	13,404 tons	274,601	225,503 +
Marble	22,186 cu. ft.	41,518	25,954 cu. ft.	50,280	8,762 +
Mineral paint	311 tons	1,756	643 tons	3,960	2,204 +
Mineral water	2,274,267 gals.	467,738	2,273,817 gals.	410,112	57,626—
Molybdenum ore			8 tons	9,945	9,945 +
Natural gas	21,992,892 M. cu. ft.	1,706,480	23,134,385 M. cu. ft.	2,871,751	1,165,271 +
Petroleum	91,146,620 bbls.	43,503,837	90,282,557 bbls.	57,421,334	13,917,497 +
Platinum	687 ounces	21,149	888 ounces	42,642	21,493 +
Potash	1,076 tons	19,391	17,908 tons	663,905	644,214 +
Pumice and volcanic ash	380 tons	6,400	1,246 tons	18,092	11,692 +
Pyrite	92,462 tons	293,148	120,525 tons	372,969	79,821 +
Quicksilver	14,199 flasks	1,157,449	21,427 flasks	2,003,425	845,976 +
Salt	169,028 tons	368,737	186,148 tons	455,695	86,958 +
Sandstone	61,350 cu. ft.	8,438	17,270 cu. ft.	10,271	1,833 +
Silica (sand and quartz)	28,904 tons	34,322	20,880 tons	48,908	14,586 +
Silver		851,129		1,637,345	836,216 +
Slate	1,060 squares	5,000			5,000—
Soapstone and talc	1,033 tons	14,750	1,703 tons	9,831	4,919—
Soda	5,799 tons	88,485	10,593 tons	261,825	181,340 +
Stone, miscellaneous*		4,783,180		4,171,519	611,661—
Strontium			57 tons	2,850	2,850 +
Tungsten concen- trates	962 tons	1,005,467	2,270 tons	4,571,521	3,566,054 +
Zinc	13,043,411 lbs.	1,617,383	15,950,565 lbs.	2,137,375	519,992 +
Totals		\$90,663,369		\$127,901,610	
Net increase					\$31,238,241 +

*Includes macadam, ballast, rubble, rip-rap, paving blocks, sand, gravel, and grinding mill pebbles.

TABLE XLVI.

Value of Minerals Produced by Counties, 1915-1916, also Number of Mineral Springs.
(From the California State Mining Bureau.)

	1915	1916	Number of mineral springs, 1910
Alameda	\$861,683	\$1,094,167	6
Alpine			1
Amador	4,063,762	3,811,428	
Butte	1,622,245	1,356,925	3
Calaveras	2,161,893	2,965,592	1
Colusa	16,003	42,803	12
Contra Costa	1,309,505	1,279,060	8
Del Norte	4,524	2,432	
El Dorado	428,336	470,687	5
Fresno	8,152,300	8,061,193	9
Glenn	46,667	81,162	3
Humboldt	358,686	274,895	5
Imperial	77,433	105,333	8
Inyo	2,771,042	4,600,096	36
Kern	25,335,184	37,826,907	26
Kings	18,608	26,788	
Lake	72,534	180,996	56
Lassen	870	9,725	19
Los Angeles	4,168,612	4,463,045	14
Madera	145,063	222,758	10
Marin	160,528	178,306	4
Mariposa	412,326	487,971	4
Mendocino	24,536	55,680	35
Merced	94,032	81,530	
Modoc	8,681	3,559	18
Mono	109,425	240,990	20
Monterey	84,986	109,872	8
Napa	884,221	1,078,537	14
Nevada	3,492,946	3,744,143	1
Orange	6,617,112	8,905,066	2
Placer	963,860	1,042,629	12
Plumas	745,715	1,399,335	16
Riverside	1,349,591	1,234,252	23
Sacramento	2,562,281	2,178,674	
San Benito	642,065	1,213,447	1
San Bernardino	2,674,042	6,569,147	44
San Diego	211,129	397,168	19
San Francisco	128,270	76,437	
San Joaquin	248,394	468,862	
San Luis Obispo	227,632	245,807	12
San Mateo	177,891	135,408	
Santa Barbara	3,984,966	4,535,029	7
Santa Clara	635,229	851,948	12
Santa Cruz	1,581,531	1,679,111	3
Shasta	8,350,133	13,639,508	16
Sierra	729,518	729,497	2
Siskiyou	514,094	580,896	28
Solano	1,335,923	1,205,335	2
Sonoma	276,104	472,048	21
Stanislaus	191,771	253,022	2
Sutter		6,450	
Tehama	4,702	54,353	11
Trinity	499,511	846,561	4
Tulare	184,599	947,200	18
Tuolumne	1,171,438	1,004,262	1
Ventura	904,767	1,135,430	9
Yolo	2,040	300	
Yuba	2,862,430	3,237,828	
Totals	\$96,663,369	\$127,901,610	591

CALIFORNIA MINERAL SPRINGS.*

There are a very large number of valuable mineral springs in California, which contain the same curative properties as the most famous spas of Europe, but they are not so widely known as they deserve. Among these are to be found alkaline, carbonated, chalybeate, epsom salts, saline, sulphur, soda, vichy, cold, warm, and hot, and also hot mud springs. There are 591 springs in California, some of which consist of several separate springs, and of these 119 are spring resorts.†

Mineral waters are generally divided into four classes: Acidulous, sulphurous, chalybeate and saline.

In the production of mineral waters California ranked first in 1914. The state also ranked fourth in number of commercial springs and third in value of output. These figures refer to mineral water actually bottled and sold, and are produced in twenty-two counties situated in all parts of the state.

Half of California mineral water is reported to be sold for table use. There are resorts at twenty-three of the larger springs with accommodation for nearly 4,800 patrons, and the water at seventeen springs is used for bathing. Spring owners reported a total of 46,000 gallons of water used for the manufacture of soft drinks.

Commercial production, by counties, for 1916 was:

County	Gallons	Value
Butte	3,150	\$1,125
Calaveras	18,255	7,025
Contra Costa	351,724	6,154
Humboldt	3,000	750
Lake	195,650	54,160
Los Angeles	320,700	8,552
Monterey	5,900	590
Napa	152,764	93,370
San Bernardino	40,500	6,500
San Luis Obispo	2,500	475
Santa Barbara	176,608	110,200
Santa Clara	50,000	11,300
Siskiyou	502,650	50,530
Solano	11,200	3,750
Sonoma	121,366	28,081
Colusa, Fresno, Marin, Riverside, San Benito, San Diego, Shasta, Tehama, Trinity*	317,850	27,600
Totals	2,273,817	\$410,112

*Combined to conceal output of a single operator in each.

Production and Value of Mineral Waters in California, 1908-1916.

Year	Commercial springs	Quantity sold, gallons	Value
1908	40	1,960,770	\$393,920
1909	44	2,179,187	444,230
1910	41	2,008,697	394,841
1911	40	2,310,237	578,439
1912	41	2,089,951	532,971
1913	49	2,801,393	531,925
1914	48	2,443,572	476,169
1915	50	2,274,267	467,738
1916	55	2,273,817	410,112

*For a list of mineral springs in the state, see Report of State Board of Agriculture, 1914, pages 176-178.

†Eleven counties—Amador, Del Norte, Kings, Merced, Sacramento, San Francisco, San Joaquin, San Mateo, Sutter, Yolo, and Yuba—have no springs. The largest number is 56, in Lake County, followed by San Bernardino with 44, Inyo 36, and Mendocino 35.

PART XIV.

CALIFORNIA FISHERIES IN 1909 AND 1915-17.*

California Fisheries: 1908-1909; Persons, Vessels, and Equipment Engaged 1915; Quantity and Value of Salmon; Salmon Rivers; Salmon Catch by Counties; Monterey Sardines; Codfish Catch; Pack of Tuna Fish; Abalone; Kelp Harvest 1917; California Oysters; Catch of Fish in 1917; Canned Fish in 1915; Canned and Cured Fish.

Review of California Fisheries, 1908.

The quantity of fish, oysters, and whale products caught in 1908 was 645,000 pounds more than in 1899, but the value was \$581,000 less. Cod showed a decline, as did flounders, smelt, sole, and crabs. Oysters fell from \$867,000 in 1899 to \$337,000 in 1908. Salmon showed an increase, the catch amounting to 24 per cent of the total value of the products in 1908, compared with 10 per cent in 1899. Other species that have increased notably are striped bass, barracuda, spiny lobsters, rockfish, catfish, and white sea bass.

The value of the products taken in the shore and boat fisheries in 1908 was \$1,627,000, 38 per cent of which was obtained in the Sacramento River, where salmon was the principal species caught, amounting to 7,292,000 pounds. San Francisco Bay was second in rank, according to the value of products taken in the shore and boat fisheries. Herring was the principal species taken in the bay fisheries, while oysters, smelt, sea bass, rockfish, striped bass, and sardines were also taken in considerable quantities.

The vessel fisheries were credited with products valued at \$343,000, whalebone and whale oil accounting for \$132,000, but the vessel fisheries amounted to only 17 per cent of the total value of the fishery products of the state.

In 1908 salmon stood first, both in quantity and in value, among the species of fish taken in California waters, the state ranking third in the country, both in quantity and in value of the catch of salmon. Of the total quantity, 79 per cent was taken from the Sacramento River. Striped bass ranked second and cod third in value, the latter being taken largely off the coast of Alaska. All were salted, and the catch was 41 per cent less than in 1904.

SUMMARY OF QUANTITIES AND VALUES.

In the value of products from fisheries, California ranked second among the Pacific coast states, both at the canvass of 1904 and 1908. The river or inland fisheries are confined almost exclusively to the rivers flowing into San Francisco Bay, the largest and most productive of which is the Sacramento.

*For further details regarding California Fisheries, see Report for 1913, pages 220-225.

The following tabular statement gives a summary of the industry for 1908:

Number of persons employed.....	4,129
Vessels and boats, including outfit.....	\$1,066,000
Apparatus of capture.....	502,000
Shore and accessory property and cash.....	91,000
Value of products.....	1,970,000

Persons, Vessels, and Equipment Engaged.

Year of 1915	Number	Value
Persons engaged	8,457	
Vessels fishing	73	\$354,375
Tonnage	3,198	
Outfit		52,791
Vessels transporting	18	66,500
Tonnage	184	
Outfit		5,510
Scows (5 tons and over).....	2	5,500
Tonnage	146	
Boats—		
Power	1,430	1,353,110
Sail, row, etc.....	1,187	105,216
Seines	154	28,035
Gill nets	4,103	417,846
Pound nets		
Trammel nets	2,320	59,400
Paranzella nets	44	9,000
Lampara nets	65	29,500
Hoop nets	4,860	13,585
Dip nets	11	64
Reef nets		
Fyke nets	2,485	21,640
Bag nets	70	2,000
Lines		12,407
Beam trawls	9	400
Wheels		
Pots and traps.....	4,307	9,437
Dredges, tongs, rakes, etc.....		1,620
Abalone outfit		2,460
Whaling apparatus		
Shore and accessory property.....		2,731,390
Cash capital		545,327
Total.....		\$5,827,113

*Report of the Commissioner of Fisheries to the Secretary of Commerce, Washington, 1917.

The quantity and value of fish taken by the shore and boat fisheries from the different waters of the state in 1908 was as follows:

Fishing ground	Quantity, pounds	Value
Sacramento River	11,643,000	\$617,000
San Francisco Bay	3,522,000	431,000
Pacific Ocean	8,552,000	249,000
Humboldt Bay, including Eel and Mad rivers.....	2,888,000	96,000
Monterey Bay	5,248,000	89,000
Monica Bay	2,574,000	67,000
Santa Barbara Channel.....	1,535,000	62,000
Klamath River	433,000	8,900
San Luis Obispo Bay	464,000	6,200
Totals.....	36,859,000	\$1,626,100

Varieties of Fish Caught in 1908.

Variety	Pounds	Value
Salmon -----	9,211,000	\$471,000
Chinook -----	8,846,000	460,000
Blueback -----	147,000	4,900
Silver -----	141,000	4,200
Steelhead -----	76,000	2,800
Sardines -----	4,638,000	30,000
Sole -----	3,487,000	65,000
Cod (salted) -----	3,298,000	94,000
Barracuda -----	3,205,000	88,000
Flounders -----	3,193,000	80,000
Rockfish -----	2,319,000	60,000
Striped bass -----	1,776,000	135,000
White sea bass -----	1,337,000	42,000
Catfish -----	1,069,000	56,000
Crabs -----	1,702,000	69,000
Oysters -----	729,000	337,000
Abalone (meat and shells) -----	1,235,000	22,000

Crustaceans.

Crabs are taken in Monterey Bay, along the coast from Half Moon Bay to Bodega Bay, and along the coast of Humboldt County. The spiny lobster fisheries are located along the coast of southern California from the northern boundary line of Santa Barbara County south to Mexico, including the adjacent islands. Practically all the shrimps are taken in San Francisco. Ecrevisse are taken in the rivers of Sonoma County.

Mollusks.

San Luis Obispo County furnishes most of the Pismo clams, although considerable quantities are taken on the beaches of Monterey Bay.

The soft shell clams are taken principally in San Francisco Bay and in Tomales Bay, Marin County.

The small quantity of cuttle fish used are taken by Monterey, Santa Cruz, and San Francisco fishermen.

The squid, which are consumed mostly by the Chinese and Japanese, are taken in the vicinity of Monterey Bay. The abalones, while found generally along the rocky sections of the coast, are taken for marketing and canning purposes principally in San Luis Obispo, Monterey, and Santa Cruz counties. Abalones are fairly abundant in several other places along the coast, as for instance Sonoma and Mendocino counties, and there are quite a few shipped from these counties to the San Francisco and Oakland markets.

The large California mussels are taken at various places along the rocky portions of the coast, but are not handled to any great extent by the markets. A smaller variety found in San Francisco Bay is sold in the San Francisco and Oakland markets to some extent.

THE SALMON FISHERIES.

The largest, best known, and most valuable species is the Chinook, or King salmon, which is found from Ventura River to North Sound, Alaska. There are two runs of spawning fish in the Sacramento, the "spring run," in April, May, and June, spawning mainly in the cold

water of the McCloud and Fall rivers. The second, or "fall run," occurs in August, September, and October, and these fish spawn in the riffles in the main river, between Tehama and Redding.

In former years the San Joaquin, and the American and Feather rivers of the Sacramento system, had large runs of salmon, but excessive fishing and the operation of various mining and irrigation projects have practically depleted them.

The Eel and Mad rivers of northern California have only a fall run, while the Klamath River has both a spring and a fall run, and the Smith River, in the northern part of the state, has a spring run alone.

The salmon rivers and fishing grounds in California are: Smith River, Klamath River, Humboldt Bay and tributaries, Mad River, Eel River, Mattole River, a small river in the southern part of Humboldt County, Sacramento and San Joaquin rivers, Pit and McCloud rivers, and Battle Creek.

The principal fishing grounds for salmon are Suisun Bay and the lower part of the San Joaquin and Sacramento rivers. Drift gill nets are used almost exclusively. From Sacramento to Anderson there is considerable commercial fishing with haul seines. The southernmost point on the coast where salmon are taken commercially is Monterey Bay.

Persons Employed, 1909.

	Fishermen	Shoremen	Transporters
White	2,114	276	-----
Japanese	168	5	-----
Chinese	15		-----
Indians		15	-----
Totals	2,297	296	82

The total number of persons employed in the salmon fisheries in 1909 was 2,675, Contra Costa County leading with 774 persons.

The total catch in 1909 amounted to 12,141,937 pounds, valued at \$585,995. Contra Costa leads in catch, followed closely by Solano County. Nearly four-fifths of the catch were made with gill nets, while Chinook salmon comprise almost all of the catch.

Production and Value by Species in 1909.

Species	Pounds	Value
Blueback	21,000	\$689
Chinook (fresh)	11,893,199	575,542
Ohinook (salted)	69,049	4,552
Silver (fresh)	99,500	2,675
Silver (salted)	46,000	1,900
Dog	4,200	84
Steelhead trout	8,989	553
Totals	12,141,937	\$585,995

Production and Value of Salmon Catch by Counties in 1909.

County	Pounds	Value
Del Norte	655,225	\$12,852
Humboldt	864,198	34,124
Marin	5,330	310
San Francisco	91,063	4,055
Solano	3,238,788	168,713
Contra Costa	3,949,080	211,166
San Joaquin	61,187	2,585
Yolo	197,520	10,852
Sacramento	599,723	32,690
Sutter	62,119	1,917
Butte	163,022	8,285
Glenn	72,547	3,627
Tehama	314,102	16,905
Shasta	46,475	2,789
Monterey*	1,779,524	73,134
Santa Cruz*	41,984	1,991
Totals	12,141,937	\$585,995

*With lines.

Statistics by Waters in 1909.

Persons Employed. Of the 2,675 persons employed in the industry, 1,880 were on Sacramento River; the next largest was employed on Monterey Bay.

Waters	Fishermen	Shoremen	Transporters	Total
Smith River	47	32	-----	79
Klamath River	37	-----	3	40
Mad River	41	-----	-----	41
Humboldt Bay	7	6	-----	13
Eel River	291	13	-----	304
Sacramento River	1,582	219	79	1,880
Monterey Bay	292	26	-----	318
Totals	2,297	296	82	2,675

Products and Value of the Salmon Catch by Waters in 1909.

Waters	Pounds	Value
Smith River	94,000	\$3,200
Klamath River	561,225	9,652
Mad River	108,900	4,286
Humboldt Bay	28,000	840
Eel River	727,298	28,998
Sacramento River	8,801,006	463,894
Monterey Bay	1,821,508	75,125
Totals	12,141,937	\$585,995

Salmon Catch by Waters in 1917.

Waters	Number
Monterey and Santa Cruz.....	3,981,670
San Joaquin and Sacramento rivers.....	7,219,846
Eel River.....	818,998
Mad River.....	75,146
Smith River.....	240,284
Klamath River.....	391,170
Total.....	12,727,114

Canned and Cured Salmon.
Mild, Cured, and Smoked Salmon in 1909.

Waters	Mild cured Chinook		Smoked				Total	
			Chinook		Silver			
	Pounds	Value	Pounds	Value	Pounds	Value	Pounds	Value
Eel -----	64,000	\$6,400	50,000	\$5,000	3,000	\$300	117,000	\$11,700
Sacramento -----	4,095,162	450,019	56,550	8,943	4,660	326	4,156,372	459,288
Monterey Bay -----	728,800	64,049	4,000	700			732,800	64,749
Totals -----	4,887,962	\$520,468	110,550	\$14,643	7,660	\$626	5,006,172	\$535,737

The output of mild, cured, and smoked salmon in 1915 was 3,187 tierces, compared with 2,650 tierces in 1914.

Sacramento Canned Salmon.

The quantity of canned salmon from the Sacramento River since 1873 increased rapidly the first ten years, until it touched upwards of 200,000 cans in 1882; since that year the quantity packed varied greatly, and rapidly declined until 1905, only 2,780 cases were canned, as the cost of the fish was so high that it did not pay. During the last five years there appears to have been a revival in the industry, although it varies considerably. The number of cases reported being: 1911, 4,142; 1912 (not reported); 1913, 950; 1914, 17,315; 1915, 6,179. The Sacramento canned salmon pack, being small, is now generally included in that of Monterey.

Codfish Catch, 1913-1917.

The codfish catch of the San Francisco fishing fleet in 1913 amounted to 1,639,847 fish; in 1914 to 2,439,202; in 1915 to 2,482,900, in 1916 to 2,126,000; and in 1917 to 3,521,633 fish.

The total number of men employed in 1915 was 372, of whom 255 were employed on fishing vessels, 22 in transportation, and 95 in shore work.

Sardine Fishery, 1913-1917.

A regular sardine fishery exists in Monterey Bay, where large quantities are caught and packed. In 1913 the quantity packed at Monterey amounted to 70,000 cases, and in 1914 to 80,000 cases, and in 1915 the catch was very poor, amounting only to 47,500 cases, but in 1916 it amounted to 260,000 cases. In 1917 the number of sardines taken in Monterey Bay were 12,700,000.

Pack of Tuna Fish, 1911-1917.

The pack of tuna fish (or albacore), which was only commenced a few years ago, shows a steady increase, the output in 1917 being about 700,000 cases, the value being estimated at \$4,200,000.

Year	Cases	Year	Cases
1911 -----	42,000	1915 -----	348,000
1912 -----	90,000	1916 -----	367,000
1913 -----	115,000	1917 -----	700,000
1914 -----	325,000		

Long Beach, San Pedro, and San Diego now have large canneries for this fish. The season lasts from about the end of July to the latter part of November.

Abalones.

More than two-thirds of the catch in this state comes from Monterey Bay. The total catch in the state in 1917 was 811,841.

California Oysters Produced.

The production of oysters varies considerably. The figures are not available for every year, but the following summary will give some idea of the size and value of the industry:

Year	Bushels	Value	Year	Bushels	Value
1890 -----	151,325	\$592,137	1904 -----	188,613	\$628,023
1895 -----	163,636	539,497	1908 -----	104,000	337,000
1899 -----	420,000	867,000	1912 -----	68,037	280,344

In California the oyster industry, including the cultivation of oysters and the oyster trade, centers in San Francisco, and the oyster grounds are located chiefly in San Francisco Bay, although there are oyster grounds also in Tomales and Humboldt bays. The oyster product of the state is all obtained from private grounds, and the season extends practically through the entire year. Of the 68,000 bushels produced in 1913 all, except 600 bushels of native oysters, valued at \$1,800, were Eastern oysters, grown from seed oysters brought from the Atlantic coast and planted on the local beds.

Kelp Harvest for 1917.

The amount of kelp harvested on the coast of California during 1917 was 398,898 tons. From this kelp was produced 6,000 tons of potash (K_2O) with a value of \$2,100,000. Other products are being produced from the kelp, such as acetone, several esters, chetones, sodium alginate, and potassium iodide.

Number of Cases of Fish Canned in California in 1915.

Kind	1-pound cans*	$\frac{1}{2}$ -pound cans	$\frac{3}{4}$ -pound cans
Tuna	136,046	172,263	51,977
Sardines	45,578	609	
Salmon	17,143	8,230	
Abalone	4,780	4,284	
Bonito	117	5,477	
Yellowtail	465	1,969	36
Shad	5,000		
Shad roe	4,800		
Rockcod	12	817	

*48 cans to the case.

THE FISHING INDUSTRY IN CALIFORNIA IN 1916.

For the year 1916 the wholesale fish dealers, packers and cannerys of California reported the receipt of 110,000,000 pounds of fish received from fishermen and fish taken by themselves. At an average price to the fishermen of four cents per pound, which we believe is a conservative average price, this would represent a value of \$4,400,000. There were 3,820 fishermen employed in catching fish, and the fishing boats used in the state were as follows: Boats transporting and collecting fish from fishermen, 59 (all under 15 tons); fishing boats under 5 tons, 1,917; fishing boats over 5 tons and under 15 tons, 146; fishing boats over 15 tons and under 50 tons, 15, making a total of 2,137 boats and representing an investment of \$2,445,710. The number of nets used by fishermen, including all kinds, was 8,275, representing an investment of \$620,729.

During the year there were along the California coast and the inland waters, 101 fishery plants operated by wholesale dealers, packers and cannerys who either caught their own fish or received fish direct from fishermen (dealers who received fish from wholesalers not included in this report); 71 of these plants were operated by wholesale dealers, who furnish the trade with fresh fish, and 30 of the plants were cannery and packing establishments where fish were canned, pickled, cured, salted, smoked or dried. There was invested in these plants \$2,008,004, of which \$1,348,647 was invested by the cannerys and packers and \$695,357 was invested by the wholesale fresh fish dealers. There were employed in these plants, not counting the fishermen, 3,967 people. There were three independent reduction plants operated in the state—that is, plants not operated in conjunction with cannerys or packing plants. These plants represented an investment of \$107,000 and employed 62 people throughout the year.

Fish Canned.

The canned fish pack for 1916 was as follows: Tuna (albacore), 108,312 cases 1-pound cans, 299,935 cases $\frac{1}{2}$ -pound cans, 54,113 cases $\frac{3}{4}$ -pound cans; deviled or potted tuna, 3,430 cases $\frac{1}{2}$ -pound cans, 14,679 cases $\frac{3}{4}$ -pound cans; tuna chowder, 1,000 cases (No. 1 Eastern oyster); sardines, 168,502 cases 1-pound cans, 50,272 cases $\frac{1}{2}$ -pound cans, 13,445 cases $\frac{3}{4}$ -pound cans; salmon, 18,720 cases 1-pound cans, 23,016 cases $\frac{1}{2}$ -pound cans; shad, 27,167 cases 1-pound cans; shad roe, 7,244

cases $\frac{1}{2}$ -pound cans; bonito, 155 cases 1-pound cans, 5,169 cases $\frac{1}{2}$ -pound cans, 930 cases $\frac{1}{4}$ -pound cans; yellowtail, 11 cases 1-pound cans, 810 cases $\frac{1}{2}$ -pound cans; mackerel, 133 cases 1-pound cans, 3,035 cases $\frac{1}{4}$ -pound cans; herring, 7,223 cases 1-pound cans; anchovies, 201 cases $\frac{1}{4}$ -pound cans; sea bass, 62 cases $\frac{1}{2}$ -pound cans; miscellaneous fishery products, 1,182 cases $\frac{1}{2}$ -pound cans, 856 cases $\frac{1}{4}$ -pound cans; abalone, 5,889 cases 1-pound cans.

Fish Salted, Smoked, Pickled and Cured (Net Weight).

Salmon, mild cured, 2,024,584 pounds; hard salted, 4,600 pounds; anchovies, pickled, 625,600 pounds; shad, mild cured, 241,080 pounds; sardines, salted, 244,600 pounds; herring, pickled and cured, 188,200 pounds; tuna, salted, 19,000 pounds; tuna, smoked, 27,414 pounds; tuna, cured in oil, 2,000 pounds; tuna, frozen, 65,205 pounds; rock fish, salted, 18,845 pounds; barracuda, salted, 12,000 pounds; rock bass, salted, 3,000 pounds; sea bass, salted, 5,000 pounds; Spanish mackerel, salted, 19,000 pounds; yellowtail, salted, 8,000 pounds; bonito, salted, 1,000 pounds; miscellaneous fish, salted, 223,396 pounds.

Chicken Food, Fish Scrap, Fish Oil, Etc.

Fish oil, 32,082 gallons; fish scrap, chicken food and fertilizer, 4,494,136 pounds.

Value of cannery buildings, and equipment, exclusive of boats and nets, \$855,000.

Number of people employed in canneries during 1915 season, 1,950.

Fish Licenses. Anglers' licenses for the year ending December 31, 1915, amounted to \$89,620; and market fishing licenses for the year ending March 31, 1916, \$38,310.*

*See Biennial Report of the State Fish and Game Commission, 1916.

Table XLVII.

California Fishery Products for the Year 1917.
(From Report of California Fish and Game Commissioners)
In Pounds, Crabs in Dozens, Oysters by Number.

Species of fish	Del Norte and Humboldt counties	Mendocino, Sonoma and Lake counties	Marin County	Sacramento and San Joaquin counties	Solano and Yolo counties
Albacore (tuna)					
Anchovy			6,428		
Barracuda					
Bonito					
Bocaccio		190			
Bluefish					
Chillipepper					
Carp		317	7,960	60,119	19,375
Catfish		62,500		75,888	40,334
Coalfish		462			
Cultus cod	1,051	33,072	125		
Dogfish		3,150	6,465		
Flounder	18,230		219	1,374	830
Halibut	19,171	91,440	118		
Hake					
Herring	8,045		2,992,389		
Kingfish					
Mackerel					
Mullet					
Pike				5,175	820
Pompano					
Perch	22,818	130	41,334		
Rock bass	3,750				
Rockfish	14,037	4,421	963		
Sole		34			
Salmon	1,521,378	427,581	37,399	925,804	3,121,198
Smelt	28,827	620	33,743		
Sea bass (white)			5,434		
Sea bass (black)					
Sandab			35		
Striped bass		40	21,764	221,277	285,549
Shad			55	877,240	1,142,542
Sardine			1,749		
Skate					
Sturgeon				3,738	1,100
Sculpin					
Sea trout					
Tom cod					
Trout (lake)					
Trout (steelhead)					
Turbot		17	1,003		
Whitebait		545	3,407		
Yellowtail					
Miscellaneous	1,719	24,192	7,285	18,363	4,689
Total fish	1,639,026	648,711	3,167,875	2,188,978	4,616,437
Crustaceans.					
Crab (dozen)	61,504	125			
Sulny lobster					
Shrimp					
Total crustaceans	61,504	125			
Mollusks.					
Squid					
Cuttlefish			120		
Clam (Pismo)					
Clam (cockle)		976	77,273		
Clam (softshell)	14,700	10,764	245,611		
Clam (mixed)	31,350	524	50,384		
Oyster (shell), number				29,497	
Abalones		15,849			
Mussels	5,760	3,884	678		
Total mollusks	51,810	31,997	403,563		

Salmon, codfish, and whale products from distant waters, are not included in this table.

TABLE XLVII—Continued.
California Fishery Products for the Year 1917—Continued.

Species of fish	Contra Costa and Alameda counties	San Francisco and San Mateo counties	Santa Cruz County	Monterey County	San Luis Obispo, Santa Barbara and Ventura counties
Albacore (tuna)					5,502
Anchovy		115,203		332,538	
Barracuda				5,902	96,319
Bonito			2,376		6,028
Bocaccio	50	60,243	19,771	185,659	
Bluefish		208,727	2,916	18,955	
Chillipepper		327,446	187,437	137,785	
Carp	56,924	34,276		8	
Catfish	47,768	994			
Coalfish	8,270	621,393	47,755	1,660	
Cultus cod	420	478,019	95,985	295,976	800
Dogfish	3,211	193,868	318	242	
Flounder	102,841	838,449	86,685	174	
Halibut		37,752	13,744	27,300	257,860
Hake		115,171	82,155		275
Herring	126,555	802,183	33,280	13,688	520
Kingfish		77,206	30,944	136,401	3,358
Mackerel		305	1,066	621,028	13,238
Mullet		9,540			
Pike	4,907	1,930			
Pompano		7,412	6,758	1,138	68
Perch	251	119,262	18,879	20,202	275
Rock bass					978
Rockfish	30	1,031,334	529,437	1,033,917	111,662
Sole	305	6,954,843	2,385,518	32,823	14,553
Salmon	1,866,920	1,268,525	264,182	3,717,488	603
Smelt	1,376	184,963	79,596	99,973	88,963
Sea bass (white)	263	4,039	1,418	4,309	9,519
Sea bass (black)		66		150	848
Sand dab		1,773,478	792,689	7,090	1,000
Striped bass	403,334	274,575	92	2,695	
Shad	3,354,040	38,955	1,251	1,792	
Sturgeon	4,987	278			
Sardine		144,440	2,440	41,100,340	
Skate		257,899	150	203	
Sculpin		205		129	
Sea trout					
Tom cod		32,328			
Trout (lake)					
Trout (steelhead)					
Turbot					
Whitebait		156,192	65		26
Yellowtail			109,238	33,442	1,328
Miscellaneous	5,512	151,956	6,606	3,496	3,002
Total fish	5,987,964	16,326,455	4,802,751	47,836,533	616,725
Crustaceans.					
Crab (dozen)		219,299	12,537	19,420	
Spiny lobster					59,953
Shrimp		725,385			
Total crustaceans		944,684	12,537	19,420	59,953
Mollusks.					
Squid				381,050	
Cuttlefish		10,614	14,488	11,209	
Clam (Pismo)			4,810		483,295
Clam (cockle)	80				500
Clam (softshell)	75,505	19,162			
Clam (mixed)	4,930	15,813	1,874		2,121
Oyster (shell), number		2,615,145			
Abalones			801	755,870	39,321
Mussels	6,915	29,344	2,140	6,814	5,716
Total mollusks		2,690,078	24,113	1,157,943	530,953

TABLE XLVII—Continued.
California Fishery Products for the Year 1917—Continued.

Species of fish	Los Angeles County	Orange County	San Diego County	Imperial County	Total for state
Albacore (tuna) -----	24,451,326	1,063	5,822,650	-----	30,280,541
Anchovy -----	52,966	-----	5,130	-----	512,265
Barracuda -----	2,072,746	20,778	595,940	-----	2,791,685
Bonito -----	480,643	-----	399,484	-----	888,531
Bocaccio -----	-----	-----	-----	-----	265,913
Bluefish -----	-----	-----	-----	-----	230,598
Chillipepper -----	-----	-----	-----	-----	652,668
Carp -----	15,807	-----	-----	-----	194,786
Catfish -----	-----	-----	-----	-----	227,484
Coalfish -----	3,856	-----	-----	-----	683,396
Cultus cod -----	42	-----	-----	-----	905,480
Dogfish -----	21,422	83	21,635	-----	250,394
Flounder -----	947	1,302	1,142	-----	1,052,193
Halibut -----	1,104,173	32,143	1,337,911	-----	2,921,612
Hake -----	21,146	615	941	-----	220,303
Herring -----	2,195	-----	-----	-----	3,978,855
Kingfish -----	570,987	2,180	27,720	-----	848,796
Mackerel -----	1,903,030	8,664	808,912	-----	3,356,243
Mullet -----	131	-----	432	51,225	61,328
Pike -----	-----	-----	-----	-----	12,832
Pompano -----	18,948	-----	1,046	-----	35,370
Perch -----	43,158	151	2,634	-----	269,094
Rock bass -----	337,422	14,055	240,308	-----	536,513
Rockfish -----	2,485,426	19,585	886,880	-----	6,120,722
Sole -----	26,509	-----	5,455	-----	9,420,040
Salmon -----	2,002	-----	-----	-----	13,153,080
Smelt -----	139,384	187,202	66,681	-----	911,328
Sea bass (white) -----	551,294	7,571	215,893	-----	799,740
Sea bass (black) -----	46,604	1,500	98,766	-----	147,934
Sand dab -----	18,141	1,606	-----	-----	2,594,039
Striped bass -----	-----	-----	-----	-----	1,209,326
Shad -----	28	114	114	-----	5,416,017
Sturgeon -----	-----	-----	-----	-----	10,103
Sardine -----	52,571,784	-----	13,706,966	-----	107,527,119
Skate -----	2,683	-----	-----	-----	260,935
Sculpin -----	17,675	-----	50	-----	18,059
Sea trout -----	1,176	500	968	-----	2,644
Tom cod -----	9,330	-----	-----	-----	41,658
Trout (lake) -----	-----	-----	-----	-----	-----
Trout (steelhead) -----	-----	-----	-----	-----	-----
Turbot -----	-----	-----	-----	-----	1,046
Whitebait -----	-----	-----	-----	-----	160,209
Yellowtail -----	1,227,996	200	1,427,239	-----	2,799,443
Miscellaneous -----	116,463	2,045	19,165	-----	8,551
Total fish -----	88,317,440	301,243	25,693,462	51,225	202,194,825
Crustaceans.					
Crab (dozen) -----	-----	-----	17	-----	312,902
Spiny lobster -----	106,823	37,409	199,689	-----	403,874
Shrimp -----	-----	-----	-----	-----	725,385
Total crustaceans -----	106,823	37,409	199,706	-----	1,442,161
Mollusks.					
Squid -----	99,656	-----	80,856	-----	564,562
Cuttlefish -----	50	-----	-----	-----	36,481
Clam (Pismo) -----	1,070	-----	-----	-----	489,175
Clam (cockle) -----	26,043	-----	-----	-----	104,872
Clam (softshell) -----	-----	-----	-----	-----	365,742
Clam (mixed) -----	3,500	4,850	-----	-----	115,346
Oyster (shell), number -----	-----	-----	-----	-----	2,644,642
Abalones -----	-----	-----	-----	-----	811,841
Mussels -----	48,141	2,090	-----	-----	111,482
Total mollusks -----	178,460	6,940	80,856	-----	5,244,143

NOTE.—The production of fish in California in 1917 was double that of the previous year.

TROUT AND SALMON DISTRIBUTION FOR 1917.

On November 6 occurred the distribution of the last consignment of fish from Mount Shasta hatchery for the season of 1917, when the streams of Marin and Sonoma counties received their annual allotments of trout fry.

The season past has been one of the most successful in the history of the California Fish and Game Commission.

Trout and Salmon Distributed in 1917.

Fisheries	Number of trout	Total number of fish
Mount Shasta—		
Rainbow	3,073,500	
Eastern brook	1,613,500	
Loch Leven	1,500,000	
Black-spotted	987,000	
Steelhead	3,000,000	
Total trout		10,174,000
Salmon		6,862,000
Mount Whitney—		
Rainbow	300,000	
Black-spotted	250,000	
Steelhead	700,000	
Total trout		1,250,000
Tahoe—		
Rainbow	241,000	
Black-spotted	763,000	
Total trout		1,004,000
Tallac—		
Black-spotted	1,946,000	
Fort Seward—		
Rainbow	140,000	
Steelhead	1,322,000	
Total trout		1,462,000
Salmon		491,000
Almanor—		
Rainbow	355,000	
Domingo Springs—		
Rainbow	126,000	
Brookdale—		
Steelhead	980,000	
Ukiah—		
Steelhead	445,000	
Snow Mountain—		
Steelhead	202,000	
Bear Lake—		
Rainbow	874,000	
Wawona—		
Rainbow	147,000	
Steelhead	68,000	
Total trout		215,000
Total trout		19,033,000
Total salmon		7,353,000
Grand total		26,386,000

CALIFORNIA GAME.*

**Deer; Antelope; Mountain Sheep; Bear; Wild Ducks and Geese;
Quail; Grouse; Sage Hen; Doves and Pigeons; Pheasants and
Wild Turkeys.**

The game animals are so valuable in California that the title to them has been retained by the state, and the fees charged for licenses, which expire annually on June 30, amount to a considerable sum.

The rates are: Residents, \$1; nonresidents, \$10, and aliens, \$25.

The receipts have been: 1910-11, \$143,265; 1911-12, \$146,181; 1912-13, \$115,984; 1913-14, \$164,111, and in 1914-15, \$166,307.

Fish and Game Districts.

In California there are so many different conditions of climate and topography that it is almost impossible to create a blanket fish and game law. When deer, for example, are in proper condition to be killed in one section they are out of condition in another. The legislature in 1917 divided the state into four fish and game districts.

Deer. It is reported in many parts of the state that deer are on the increase, but this is doubtful. There are probably killed in the state each year by hunters, 12,000 deer. It has been estimated that every mountain lion will kill at least 52 deer a year; estimating the lions at 250, the number devoured by them would amount to 13,000. Coyotes and other animals would probably bring the total number destroyed to near 30,000. In average years the natural death rate is not great; most of them meet violent deaths, so the above number can be accepted as the number of deer dead from all causes in the state. The total number killed in 1911 was 6,489; in 1912, 7,537; in 1913, 8,269; 1914, 8,699; 1915, 8,343, and 1916, 8,117.

Elk and Antelope. Of the thousands of these animals that formerly ranged the state, there are now but a few scattered bands. In the San Joaquin Valley, near Buttonwillow, and in the Sequoia National Park range are all that are left of the thousands of "tule," a dwarf elk that formerly were found throughout the San Joaquin and Sacramento valleys. This species is peculiar to California, and now only number between 400 and 500 head.

Another variety is found in small numbers in Humboldt and Del Norte counties, in bands numbering from six to twelve, but the total number probably does not exceed 200.

The Antelope. The antelope is still found in the extreme eastern part of the state; some are found in Antelope Valley, in the north-eastern part of Los Angeles County, while in the western San Joaquin Valley the largest band of the state is found. In Modoc, Lassen, and Siskiyou counties there are several small bands. All told, there are probably about 600 antelope left in the state.

*See Biennial Report of California Fish and Game Commission, 1916.

Mountain Sheep. These still flourish in considerable numbers in the southeastern part of the state. Formerly this magnificent game animal ranged over the entire Sierra Nevada region and across to the lower Coast Range, as far north as San Luis Obispo County, but they are now restricted to the most inaccessible portions.

Bear. The grizzly bear is practically extinct. The common brown or black bear is fairly abundant in some parts. It is for the most part a harmless species, feeding on roots, berries, grubs and insects, and rarely kills sheep or hogs. The pelt of a well-colored bear in prime condition is worth from \$20 to \$40.

Fur-bearing Animals. Few people realize the importance of fur-bearing animals in this state, yet each year furs worth nearly \$200,000 are shipped to the various fur centers.

Wild Ducks and Geese. These are the most abundant game birds in the state, although neither of them are nearly as numerous as they were in former years. Ducks breed throughout the entire state, and the number killed in California in 1911 is estimated at approximately one million.

Quail. Quail are slowly decreasing throughout most of the state, on account of the great number of hunters. In parts of the state there is urgent need of a close season for a number of years if quail are to be kept from extermination. Mountain quail have become very scarce throughout the southern end of the state, and in the coast region below San Francisco. In other parts of the state they are about holding their own.

Grouse. Ruffed grouse are fairly abundant in the extreme northwestern corner of the state. The blue grouse is becoming scarcer, and where the settlers have engaged in sheep raising, they are almost extinct.

The Sage Hen. This bird is found only in the eastern part of the state, in the true sagebrush country. The sage hen is practically never found below an elevation of 3,000 to 4,000 feet, nor out of the true sagebrush country. It is the largest California game bird.

Doves and Pigeons. The most difficult bird to arrange a proper season for is the common mourning dove, January being the only month in which they do not nest. On this account many sportsmen advocate the removal of the dove from the list of game birds. There is urgent need for the protection of the wild (band-tail) pigeon. This is the slowest breeding game bird in the United States. One egg is the complete set, and probably only one egg is laid the entire year.

Pheasants and Wild Turkeys and Hungarian Partridges. Of the introduced game birds, ring-neck pheasants have done well, especially in Humboldt County; they have also increased in parts of Santa Clara and San Joaquin valleys. Wild turkeys have been liberated in the lower Sierra Nevada region; other plants have been made in San Diego, San Bernardino, Monterey, San Benito, Alameda, Sonoma, and Humboldt counties. Hungarian partridges have been given a good trial, but, as yet, without success.

NUMBER OF DEER KILLED IN VARIOUS COUNTIES DURING THE OPEN SEASONS 1914-1916.

(Report of California Fish and Game Commission, Oct., 1917.)

County	1914	1915	1916
District No. 1—			
Alpine	39	66	170
Amador	36	43	64
Butte	39	26	130
Calaveras	202	111	179
Del Norte	*	1225	1250
El Dorado	300	109	82
Fresno	151	156	115
Humboldt	200	167	1300
Inyo	40	1131	54
Kern	235	121	375
Kings	14	1	31
Lassen	89	126	87
Madera	57	34	104
Mariposa	53	10	38
Merced	†	*	*
Modoc	160	106	106
Mono	152	4	6
Nevada	143	65	75
Placer	77	87	50
Plumas	200	93	276
Sacramento	30	*	*
San Joaquin	8	*	*
Shasta	357	492	425
Sierra	37	11	45
Siskiyou	575	665	378
Stanislaus	†	51	36
Sutter	*	*	*
Tehama	198	164	253
Trinity	735	543	508
Tulare	128	223	285
Tuolumne	203	174	311
Yuba	6	14	*
Totals	4,464	4,028	4,538
District No. 2—			
Colusa	250	262	233
Glenn	90	215	170
Lake	161	84	193
Marin	320	1325	194
Mendocino	268	1500	350
Solano	14	5	*
Sonoma	436	360	131
Yolo	38	127	61
Napa	373	119	163
Totals	1,950	1,997	1,495
District No. 3—			
Alameda	8	1125	1125
Contra Costa	*	†	175
Monterey	632	595	91
San Benito	11	55	50
San Francisco	No hunting		*
San Luis Obispo	60	155	167
San Mateo	5	55	150
Santa Clara	5	363	401
Santa Cruz	155	1132	124
Totals	876	1,479	1,283

Number of Deer Killed in Various Counties—Continued.

County	1914	1915	1916
District No. 4—			
Imperial	*	*	5
Los Angeles	143	95	153
Orange	24	*	20
Riverside	102	55	45
San Diego	45	44	35
San Bernardino	97	29	60
Santa Barbara	475	338	270
Ventura	*	172	213
Totals	886	733	801
Reports unspecified as to counties—			
Shasta National Forest	87		
Lassen National Forest	13		
California National Forest	238		
Stanislaus National Forest	96		
Santa Barbara National Forest	89		
Sierra National Forest		106	
Totals	523	106	
Grand totals	8,699	8,343	8,117

*No record.

†Closed season.

‡Estimated.

HIGHER BOUNTY TO BE PAID ON MOUNTAIN LIONS.

The relatively small kill of lions during the past few years and the constant complaint by lion hunters that the bounty was insufficient to make the lion hunting worth while, has led the Fish and Game Commission to increase the bounty on female lions from \$20 to \$30. The new bounty will be in effect after July 1, 1917. All claimants for the bounty will be required to send in the entire skin of the animal with the evidence of sex attached. In cases where the sex can not positively be determined, only \$20 will be paid.

It is hoped that this increase of bounty will develop sufficient incentive to so control the number of mountain lions that their effect on deer will be negligible.

LION BOUNTIES.

Statement of lion bounties paid by the Fish and Game Commission, 1915 and 1916:

County	1915	1916	Total (Nov., 1907, to Jan., 1917)
Alameda			1
Alpine	1		1
Amador		1	9
Butte			30
Calaveras	3		11
Colusa	1		14
Del Norte	2	9	86
El Dorado		2	38
Fresno	1	1	11
Glenn			36
Humboldt	26	39	505
Imperial	1		1
Inyo	3	1	6
Kern	15	18	92
Lake	8	2	81
Lassen			6
Los Angeles	5	1	25
Madera	10	1	31
Mariposa	2	14	47
Mendocino	7	7	164
Merced			1
Modoc			3
Monterey	8	6	62
Mono		5	7
Napa			3
Nevada		2	5
Orange			4
Placer	1	4	30
Plumas			8
Riverside		3	16
San Benito	2	5	29
San Bernardino	1		14
San Diego	1	1	29
San Joaquin	2		2
San Luis Obispo	10	3	58
San Mateo			1
Santa Barbara	4	6	71
Santa Clara	1	4	12
Santa Cruz			1
Shasta	7	10	194
Sierra			6
Siskiyou	9	9	233
Sonoma		1	15
Stanislaus	1		4
Sutter			1
Tehama	4	1	147
Trinity	4	3	232
Tulare	8	8	63
Tuolumne	7	11	48
Ventura	7	1	28
Yuba			3
Totals	162	179	2,526

PART XV.

FINANCE AND TAXATION.

Tariff Acts 1789-1913; Imports and Exports of Gold and Silver 1890-1917; Foreign Trade and California Ports 1890-1917; Total Assessed Value by Counties 1910-1917; Assessed Value of All Property 1850-1917; California Banks in 1917; Insurance: Life, Fire, and Marine; Steam Railroads; Electric Railroads.

TARIFF ACTS.

Tariff Acts Passed by Congress.

(From 1789 to 1913.)

1789. July 4.	1861. August 5.
1790. August 10.	1862. July 14.
1791. March 3.	1863. March 3.
1792. May 2.	1864. June 30.
1794. June 7.	1865. March 3.
1796. January 29.	1866. July 28.
1797. March 3.	1867. March 2.
1800. May 13.	1870. July 14.
1804. March 27.	1872. June 6.
1816. April 27.	1875. February 8.
1818. April 20.	1883. March 3.
1824. May 22.	1890. June 10.
1828. May 19.	1890. October 1 (McKinley bill).
1832. July 14.	1894. August 27 (Wilson bill).
1833. March 2.	1897. July 24 (Dingley bill).
1842. August 30.	1903. March 3 (Philippine tariff).
1846. July 30.	1909. August 5 (Paine-Aldrich bill).
1857. March 3.	1909. August 5 (Philippine tariff).
1861. March 2.	1913. October 3 (Wilson bill).

In addition to the above 38 acts, there are 224 other miscellaneous acts, proclamations, and joint resolutions, making a total of 262 on the subject of the tariff. The act which came into effect on October 4, 1913, makes a considerable reduction on agricultural products and places many articles on the free list.

FOREIGN TRADE AND CALIFORNIA IMPORTS AND EXPORTS.

*Custom districts and ports.**Sub-ports of entry.*

San Francisco	-----	Oakland, Port Harford, Monterey.
Los Angeles	-----	Santa Barbara, Redondo Beach and San Pedro.
San Diego	-----	
Humboldt	-----	Eureka.

In 1914 these subports of entry were consolidated into two districts, San Francisco for northern California, and southern California including Los Angeles and San Diego.

TARIFF CHANGES, 1909 AND 1913.
Summary of Principal Agricultural Products.

Article	Act of August 5, 1909	Act of October 3, 1913
Agricultural implements and machines.....	15 per cent	Free
Apples, peaches, pears, quinces, cherries, plums.....	25¢ bushel	10¢ bushel
Apricots and peach kernels.....	4¢ pound	3¢ pound
Bananas.....	Free	No change
Beans and peas, prepared.....	2½¢ pound	1¢ pound
Beans.....	45¢ bushel	25¢ bushel
Beeswax.....	Free	No change
Beets.....	25 per cent	5 per cent
Beets (sugar).....	10 per cent	5 per cent
Berries, in natural state.....	1¢ quart	1¢ quart
Brandy and other spirits.....	\$2.00 proof gal.	No change
Casks, barrels, packing boxes.....	30 per cent	15 per cent
Champagne.....	\$9.00 per dozen	No change
Cider.....	5¢ per gallon	2¢ per gallon
Cotton, raw.....	Free	No change
Cranberries.....	25 per cent	10 per cent
Currants, Greek.....	2¢ pound	1½¢ pound
Dates.....	1¢ pound	No change
Eggs (fresh).....	Free	No change
Evaporated fruits.....	2¢ pound	1¢ pound
Figs.....	2½¢ pound	2¢ pound
Fruit plants, tropical.....	Free	No change
Grapes (in packages).....	25¢ cubic foot	No change
Honey.....	20¢ gallon	10¢ gallon
Lemons.....	1½¢ pound	•
Oranges, limes, pomeloes.....	1¢ pound	•
Nursery stock.....	25 per cent	15 per cent
Nuts—		
Almonds, unshelled.....	6¢ pound	4¢ pound
Walnuts, shelled.....	4¢ pound	3¢ pound
Walnuts, unshelled.....	5¢ pound	4¢ pound
Filberts, shelled.....	3¢ pound	2¢ pound
Filberts, unshelled.....	5¢ pound	4¢ pound
Peanuts, shelled.....	3¢ pound	2¢ pound
Peanuts, unshelled.....	1¢ pound	3¢ pound
All other nuts.....	1¢ pound	1¢ pound
All other nuts (from Philippine Islands).....	1¢ pound	Free
Olive, in bottles, less than 5 gallons.....	25¢ gallon	15¢ gallon
Olive, in packages, over 5 gallons.....	15¢ gallon	15¢ gallon
Olive oil in bottles, less than 5 gallons (edible).....	50¢ gallon	30¢ gallon
Other olive oil.....	40¢ gallon	20¢ gallon
Olive oil fit only for mechanical or manufacturing purposes.....	Free	No change
Petroleum and mineral oils.....	Free	No change
Onions.....	40¢ bushel	20¢ bushel
Peas, green or dried.....	25¢ bushel	10¢ bushel
Pickles and sauces.....	40 per cent	25 per cent
Pineapples in barrels or packages.....	8¢ cubic foot	6¢ cubic foot
Pineapples preserved in own juice.....	25 per cent	20 per cent
Potatoes (from countries imposing duty on American potatoes).....	25¢ bushel	10 per cent
Potatoes.....	25¢ bushel 60 lbs.	Free
Poultry, live.....	3¢	1¢
Poultry, dead.....	5¢	2¢
Prunes.....	2¢ pound	1¢ pound
Raisins and dried grapes.....	2½¢ pound	2¢ pound
Rice, cleaned.....	2¢ pound	1¢ pound
Rice, uncleaned.....	1½¢ pound	8¢ pound
Sugar.....	Various rates	†
Sugar beets (see Beets).....		
Vegetables, prepared or pickled.....	40 per cent	25 per cent
Vegetables, natural, not otherwise specified.....	25 per cent	15 per cent
Vinegar.....	7½¢ per proof gal.	4¢ per proof gal.
Wine and brandy.....	Various rates	No change

*In packages, capacity 1½ cubic feet, or less, 18¢ per package; exceeding 1½ cubic feet and not exceeding 2½ cubic feet, 35¢ per package; exceeding 2½ cubic feet and not exceeding 5 cubic feet, 70¢ per package; exceeding that size or in bulk, ½ of 1¢ per pound.

†No change till March 1, 1914, when a reduction of about 12½ per cent took place. After May 1, 1916, sugar was admitted free.

TARIFF CHANGES—Continued.
Farm Animals and Dairy Products.

Commodity	Before October 4, 1913	October 4, 1913, and after
Animals:		
Asses.....	Breeding purposes and teams of immigrants, free; all other, 20 per cent ad valorem.	Breeding purposes and teams of immigrants, free; all other, 10 per cent ad valorem.
Cattle.....	Breeding purposes and teams of immigrants, free; all other: less than 1 year, \$2 per head; all other, worth not over \$14, \$3.75 per head; worth over \$14, 27½ per cent ad valorem.	Free.
Goats.....	20 per cent ad valorem.	Free.
Horses.....	Breeding purposes and teams of immigrants, free; all other: worth \$150 or less per head, \$30; worth over \$150, 25 per cent ad valorem.	Breeding purposes and teams of immigrants, free; all other, 10 per cent ad valorem.
Mules.....	Same as horses.	Same as horses.
Sheep.....	Breeding purposes, free; all other: less than 1 year old, 75 cents per head; 1 year old and over, \$1.50.	Free.
Swine.....	Breeding purposes, free; all other, \$1.50 per head	Free.
Dairy products:		
Butter.....	6 cents per pound.	2½ cents per pound.
Cheese.....	4 cents per pound.	20 per cent ad valorem.
Cream.....	5 cents per gallon.	Free.
Milk.....	Fresh, 2 cents per gallon; condensed and evaporated, 2 cents per pound.	Free.
Hides and skins, raw.....	Free	Free.
Meat:		
Beef and veal.....	Fresh beef, 1½ cents per pound; other beef, 25 per cent ad valorem; veal, 1½ cents per pound.	Free.
Mutton and lamb.....	1½ cents per pound.	Free.
Pork.....	Fresh, 1½ cents per pound; bacon and hams, 4 cents per pound; other pork, 25 per cent ad valorem.	Free.
Sausage.....	Bologna, or frankfurter, free; other sausage, 25 per cent ad valorem.	Free.
Wool.....	Class 1, clothing, etc., wools; unwashed, 11 cents per pound; washed, 22 cents; scoured, 33 cents. Class 2, combing, etc., wools, unwashed, 12 cents per pound; washed, 12 cents; scoured, 36 cents. Class 3: value not over 12 cents per pound, 12 cents; over 12 cents, 21 cents.	Free on and after Dec. 1, 1913.

Cereals, Hay, Hops, and Straw.

Commodity	Before October 4, 1913	October 4, 1913, and after
Barley.....	30¢ per bushel of 48 pounds.	15¢ per bushel.
Broom corn.....	\$3 per ton.	Free.
Buckwheat.....	15¢ per bushel of 48 pounds.	Free.
Corn.....	15¢ per bushel of 56 pounds.	Free.
Oats.....	15¢ per bushel of 32 pounds.	6¢ per bushel.
Rye.....	10¢ per bushel.	Free.
Wheat.....	25¢ per bushel.	Free.
Wheat flour.....	25 per cent ad valorem.	Free.
Hay.....	\$4 per ton.	\$2 per ton.
Hops.....	16¢ per pound.	No change.
Straw.....	\$1.50 per ton.	50¢ per ton.

**Imports and Exports of Gold and Silver (Coin and Bullion) of California Ports,
for fiscal year ending June 30, 1895-1917.
San Francisco.**

Year	Gold		Silver		Gold and silver	
	Imports	Exports	Imports	Exports	Total imports	Total exports
1895	\$1,858,878	\$708,293	\$1,971,768	\$13,344,012	\$3,830,646	\$14,052,305
1896	1,206,234	854,554	2,642,372	11,763,449	3,848,606	12,618,003
1897	9,647,628	1,063,945	2,611,694	9,459,133	12,259,322	10,543,078
1898	25,799,405	1,217,490	2,472,847	9,514,531	28,271,752	10,732,021
1899	32,124,013	1,774,717	2,551,666	4,889,974	34,675,679	6,664,691
1900	10,574,256	2,025,189	3,096,775	7,502,120	13,671,031	9,527,309
1901	24,911,109	364,758	3,738,814	7,927,900	28,649,923	8,292,658
1902	14,338,906	781,826	4,169,221	8,363,761	18,508,127	9,150,587
1903	9,263,674	3,114,023	2,679,547	6,392,414	11,943,221	9,506,437
1904	40,366,770	652,277	3,492,909	4,600,950	43,859,679	5,253,227
1905	15,590,871	5,905,700	3,003,796	6,622,002	18,594,667	12,527,702
1906	4,233,579	5,366,189	2,513,861	9,417,951	6,747,440	14,784,140
1907	14,504,917	22,391	3,414,584	2,410,717	17,919,501	2,433,108
1908	3,759,329	34,539	3,164,423	5,182,657	6,923,757	5,217,196
1909	3,588,424	3,033,975	2,652,954	6,886,849	6,241,378	9,920,824
1910	3,362,104	27,008,324	2,582,352	7,314,954	5,944,456	34,323,278
1911	8,111,108	20,690	1,579,109	9,262,759	9,690,217	9,283,449
1912	4,532,321	7,034,962	1,453,089	9,905,094	5,985,410	16,940,056
1913	3,941,975	113,108	1,806,461	11,753,927	5,750,436	11,867,035
1914	1,831,388	5,090	1,646,866	9,494,498	3,478,254	9,499,588
1915	25,881,230	68,855	2,150,838	6,021,927	28,032,063	6,090,782
1916	58,087,257	23,308,121	3,250,236	9,054,271	61,337,493	32,357,392

**Imports of Gold and Silver Into Southern California, 1914-1917.†
(No exports.)**

	Gold	Silver	Total gold and silver
1914	\$22,009	\$27,146	\$49,155
1915	7,331	1,714	9,045
1916	10,189	6,260	16,449

**Imports of Gold and Silver into San Diego and Los Angeles, 1905-1913.
(No exports.)**

Year	Los Angeles			San Diego		
	Gold	Silver	Total gold and silver imports	Gold	Silver	Total gold and silver imports
1905				\$32,565		\$32,565
1906		*\$172	*\$172	9,695		9,695
1907				4,915	\$996	5,911
1908	\$25		25	10,553	997	11,550
1909	50		50	29,066		29,066
1910				26,638		26,638
1911				11,481		11,481
1912	6,000		6,000	16,053	4,686	20,739
1913				6,640		6,640

NOTE.—The customs districts of Los Angeles and Humboldt were established in 1883, and that of San Diego in 1879. No gold or silver is exported except through San Francisco.

*Also \$1,000 in silver exported.

†Since 1914 the returns for Los Angeles and San Diego are combined under this heading. There are no exports of gold and silver from southern California.

Imports and Exports of Foreign and Domestic Merchandise from California Ports,
1890-1913.*

(For fiscal year ending June 30.)

Year	San Francisco		Los Angeles	
	Imports	Exports	Imports	Exports
1890	\$48,751,223	\$36,876,091	\$169,955	\$220
1891	50,943,299	40,168,771	315,226	
1892	47,135,684	40,737,044	398,517	42,535
1893	45,291,099	31,144,180	502,044	
1894	38,146,626	24,903,009	445,966	102,943
1895	36,269,637	24,873,148	657,671	6,696
1896	41,400,317	31,582,910	679,944	30,487
1897	34,375,945	39,647,606	504,028	7,499
1898	42,822,945	41,223,759	476,042	110,440
1899	35,746,577	30,214,904	769,472	4,090
1900	47,869,628	40,368,238	1,011,090	
1901	35,161,753	34,596,792	885,473	30
1902	35,102,981	38,183,755	676,615	80
1903	36,454,283	33,502,616	1,019,481	682
1904	37,542,978	32,547,181	1,292,560	503
1905	46,675,545	49,924,026	810,000	291
1906	44,433,271	39,915,269	827,059	12,106
1907	54,094,570	33,026,664	1,559,322	45,000
1908	48,251,476	28,000,069	1,538,199	187,247
1909	49,998,111	31,669,370	1,305,341	193,221
1910	49,350,643	31,180,760	1,942,647	135,911
1911	53,885,021	40,624,903	2,655,558	86,415
1912	59,235,471	49,249,734	3,225,618	161,735
1913	62,501,681	66,021,385	2,747,601	253,562

NOTE.—The customs district of San Francisco was established September 28, 1850; that of San Diego in 1879; Los Angeles (Wilmington) and Humboldt in 1883.

*For the imports and exports, 1851-1879, see Report for 1912, pages 266-267.

Imports and Exports of Foreign and Domestic Merchandise from California Ports,
1890-1913—Continued.

(For fiscal year ending June 30.)

Year	San Diego		Humboldt		Totals*	
	Imports	Exports	Imports	Exports	Imports	Exports
1890	\$437,665	\$264,644	\$1,549	\$108,051	\$49,360,392	\$37,249,006
1891	538,066	394,824	4,005	154,503	51,800,596	40,718,098
1892	380,770	441,200	3,925	151,553	47,918,906	41,372,332
1893	407,236	79,443	1,571	138,008	46,201,950	31,361,631
1894	383,399	379,586		106,750	38,975,991	25,492,288
1895	346,155	45,225	2,110	106,594	37,275,573	25,031,663
1896	324,465	196,419	1,460	102,440	42,406,186	31,912,256
1897	222,063	199,540	1,183	162,027	35,103,219	40,016,672
1898	198,417	491,139	1,181	146,725	43,498,645	41,972,063
1899	397,115	1,425,861	2,006	195,678	36,915,170	31,840,533
1900	559,585	2,739,174	1,528	253,616	49,441,831	43,361,078
1901	511,661	963,014		163,682	36,558,887	35,723,518
1902	440,239	255,833	1,908	319,550	36,221,743	30,759,218
1903	417,557	168,993	3,423	497,810	37,894,744	34,170,101
1904	459,786	317,830	7,107	550,436	39,302,431	33,415,950
1905	275,631	320,533	1,821	140,441	47,762,997	50,385,291
1906	464,634	299,579	4,283	737,940	45,729,247	40,964,893
1907	653,789	809,809	1,173	677,092	56,308,854	34,558,565
1908	722,359	641,223	10,736	759,726	50,522,770	29,788,265
1909	535,257	397,626	4,862	894,228	51,843,571	33,154,445
1910	741,916	928,994	6,317	1,031,182	52,041,523	33,276,847
1911	875,184	1,022,481	6,779	1,058,615	57,422,542	42,792,414
1912	1,076,990	1,092,159	7,622	1,231,441	63,545,701	51,735,069
1913	1,022,904	1,137,116	8,330	1,028,046	66,280,516	68,440,109

On account of the reorganization of the customs districts since 1913, Humboldt being consolidated with San Francisco as the northern districts, and Los Angeles and San Diego as the southern California district, the above detailed classification can not be continued.

*To these totals must be added the total imports and exports of gold and silver on page 326.

San Francisco and Southern California, 1914-1917.

(Merchandise.)

Year	San Francisco		Southern California		Total	
	Imports	Exports	Imports	Exports	Imports	Exports
1914	\$67,111,081	\$63,374,909	\$4,908,543	\$2,010,280	\$72,019,624	\$65,385,189
1915	76,068,028	81,500,979	4,716,390	2,512,355	80,784,418	84,013,334
1916	113,645,919	94,558,987	4,175,260	3,268,105	117,821,179	97,827,092
1917	144,027,410	143,202,190	6,532,381	5,825,090	150,559,791	149,027,280

NOTE.—It can be seen at a glance that the above figures for 1916 and 1917 far exceed all records. The total imports and exports are very close.

TABLE XLVIII.

Grand Total Value of All Assessed Property in California, 1914-1917.

(From the Reports of the State Controller's Department.)

Counties	1914	1915	1916	1917
Alameda	\$252,751,974	\$262,482,711	\$262,615,761	\$264,839,360
Alpine	550,359	781,313	764,822	707,196
Amador	6,299,280	6,739,328	6,988,596	6,940,140
Butte	25,247,155	24,941,991	25,835,721	26,027,920
Calaveras	8,010,010	7,983,665	8,212,509	8,365,100
Colusa	15,662,550	16,036,728	16,242,337	16,618,563
Contra Costa	52,204,930	54,332,638	58,236,959	60,419,854
Del Norte	5,078,804	5,077,652	5,023,710	5,042,689
El Dorado	7,104,168	7,063,583	8,120,609	8,155,775
Fresno	96,567,818	96,803,387	99,632,587	107,901,428
Glenn	17,576,399	17,472,821	18,485,434	18,964,725
Humboldt	33,793,967	34,742,783	34,504,579	34,669,142
Imperial	25,757,829	29,121,521	30,744,665	32,984,567
Inyo	12,233,464	12,146,953	12,314,033	14,233,093
Kern	85,347,560	88,848,987	91,079,214	99,228,252
Kings	16,237,992	17,682,680	18,441,530	19,795,478
Lake	4,802,733	5,009,380	4,954,820	4,963,849
Lassen	9,336,777	10,385,369	10,578,528	10,948,554
Los Angeles	849,991,595	862,442,180	991,377,277	1,012,731,129
Madera	15,754,791	16,023,639	16,543,094	16,832,650
Marin	23,460,510	23,446,406	23,823,709	23,834,970
Mariposa	3,643,117	3,681,289	3,797,533	3,939,271
Mendocino	18,380,047	18,316,490	18,680,482	19,055,197
Merced	25,576,932	26,544,868	26,920,444	27,738,980
Modoc	7,972,273	8,068,490	8,154,866	8,290,712
Mono	1,831,331	1,911,797	2,760,745	3,423,455
Monterey	32,363,263	34,572,343	35,545,505	36,585,097
Napa	18,625,240	17,357,532	19,726,097	20,069,463
Nevada	8,226,968	8,347,631	8,547,227	8,681,714
Orange	54,546,951	55,266,628	57,403,590	69,546,916
Placer	12,710,488	14,947,936	13,689,090	15,110,168
Plumas	9,398,811	10,372,910	10,920,670	12,127,779
Riverside	34,005,577	35,189,142	36,567,385	36,961,680
Sacramento	93,464,057	96,406,835	96,573,956	100,792,444
San Benito	9,091,200	9,270,826	10,061,274	10,491,640
San Bernardino	63,345,022	66,239,493	67,958,129	69,385,972
San Diego	75,866,729	76,689,137	77,424,940	80,768,347
San Francisco	647,456,025	656,677,332	756,235,432	791,957,717
San Joaquin	66,368,964	68,421,947	70,383,447	74,766,023
San Luis Obispo	21,157,354	21,652,203	22,115,243	32,559,356
San Mateo	32,465,471	35,986,919	36,330,755	36,899,137
Santa Barbara	34,496,827	35,062,648	36,502,320	40,543,157
Santa Clara	81,008,331	86,666,646	87,250,360	89,844,097
Santa Cruz	21,135,033	20,837,458	20,825,863	20,932,979
Shasta	15,185,419	15,253,691	17,182,264	18,523,908
Sierra	2,395,222	2,516,471	2,444,026	2,522,401
Siskiyou	21,155,790	21,341,008	21,535,333	21,661,105
Solano	26,361,996	26,707,377	26,873,814	27,820,236
Sonoma	41,837,840	41,677,089	41,255,435	41,855,285
Stanislaus	31,843,486	33,193,980	33,731,883	34,996,023
Sutter	13,269,700	13,358,785	13,472,178	14,045,480
Tehama	15,779,193	16,039,723	15,896,977	16,671,864
Trinity	3,166,400	3,400,979	3,431,979	3,529,700
Tulare	48,840,387	52,682,367	53,324,733	55,068,162
Tuolumne	10,110,677	9,559,479	9,493,906	9,945,752
Ventura	30,971,620	32,159,977	32,642,867	33,607,564
Yolo	24,621,651	24,970,716	24,851,784	25,751,148
Yuba	10,200,095	10,510,887	10,687,852	11,925,269
Totals	\$3,232,646,152	\$3,311,446,744	\$3,577,877,764	\$3,722,606,407

TABLE XLIX.

Funded Debt, Total County Indebtedness, and State and County Rate of Taxation
Each \$100 in 1917.

(From the Report of the State Controller.)

Counties	Funded debt	Floating debt with estimated interest	Total county indebtedness	Total county rate of taxation on each \$100 (No state rate)	
				Inside	Outside
Alameda		\$24,208 60	\$24,208 60	\$1.08	\$1.42
Alpine		7,690 85	7,690 85		1.45
Amador				1.60	2.00
Butte				2.30	2.75
Calaveras				1.75	2.15
Colusa	\$314,000 00		314,000 00	1.40	1.90
Contra Costa	161,000 00		161,000 00	1.55	1.95
Del Norte		2,388 47	2,388 47	1.25	1.85
El Dorado	116,000 00		116,000 00	1.70	2.19
Fresno				1.28	1.66
Glenn	450,000 00		450,000 00	1.33	1.73
Humboldt				2.27	2.80
Imperial				1.55	2.15
Inyo	17,500 00		17,500 00	1.30	1.60
Kern	2,928,000 00		2,928,000 00	.845	1.50
Kings	618,000 00		618,000 00	3.10	3.70
Lake	19,000 00		19,000 00	1.65	2.25
Lassen	100,000 00		100,000 00	1.70	2.10
Los Angeles	3,200,000 00		3,200,000 00	.85	1.30
Madera				1.50	1.90
Marin				1.40	1.75
Mariposa					2.30
Mendocino	55,000 00		55,000 00	1.85	2.45
Merced				1.50	2.10
Modoc				1.25	1.65
Mono					1.70
Monterey	484,000 00		484,000 00	1.52	1.92
Napa				1.60	2.00
Nevada				2.70	3.20
Orange	1,255,000 00		1,255,000 00	1.30	1.70
Placer				2.05	2.45
Plumas	135,100 00		135,100 00		1.70
Riverside	1,255,000 00		1,255,000 00	1.93	2.53
Sacramento	3,235,000 00	41,087 00	3,276,087 00	1.34	1.94
San Benito	245,000 00		245,000 00	2.15	2.40
San Bernardino	1,900,000 00		1,900,000 00	1.96	2.35
San Diego	1,033,000 00		1,033,000 00	1.95	2.65
San Francisco	44,400,100 00		44,400,100 00	2.29	
San Joaquin	1,600,000 00		1,600,000 00	1.50	1.90
San Luis Obispo	62,000 00		62,000 00	1.27	1.55
San Mateo	1,344,000 00	30,131 00	1,374,131 00	1.47	1.97
Santa Barbara	290,000 00		290,000 00	2.00	2.55
Santa Clara	300,000 00		300,000 00	1.50	1.92
Santa Cruz				1.70	2.33
Shasta				2.00	2.40
Sierra				1.75	2.25
Siskiyou				1.46	1.86
Solano	180,000 00		180,000 00	1.55	1.95
Sonoma	244,000 00		244,000 00	1.62	2.02
Stanislaus	1,482,000 00		1,482,000 00	1.70	2.00
Sutter	20,000 00		20,000 00	2.10	2.50
Tehama				1.88	2.30
Trinity					2.50
Tulare	2,200,000 00		2,200,000 00	1.70	2.20
Tuolumne				1.83	2.30
Ventura	1,350,000 00		1,350,000 00	2.34	2.68
Yolo	190,000 00		190,000 00	1.67	2.27
Yuba				1.90	2.30
Totals	\$71,182,700 00	\$105,505 92	\$71,288,205 92		

NOTE.—Where two rates of taxation are given, the lesser rate is levied upon property situate within the limits of incorporated cities or towns, such property being exempt from road tax.

TABLE L.

Grand Total Value of All Assessed Property in California, 1850-1917.

(From the Reports of the State Controller's Department.)

Year	Total assessed value of property in California	Year	Total assessed value of property in California
1850	\$57,670,689	1884	\$821,078,767
1851	49,231,052	1885	859,512,384
1852	64,579,375	1886	817,445,729
1853	95,335,646	1887	956,740,805
1854	111,191,690	1888	1,107,952,700
1855	103,887,193	1889	1,111,550,979
1856	115,007,440	1890	1,101,137,290
1857	126,059,461	1891	1,242,300,434
1858	125,955,877	1892	1,275,678,822
1859	131,060,279	1893	1,216,380,398
1860	148,193,540	1894	1,204,347,291
1861	147,811,617	1895	1,132,512,908
1862	160,369,071	1896	1,264,973,043
1863	174,104,955	1897	1,089,373,316
1864	179,164,730	1898	1,132,230,221
1865	183,534,312	1899	1,193,961,761
1866	200,368,826	1900	1,217,648,863
1867	212,205,339	1901	1,241,359,555
1868	237,483,175	1902	1,290,238,964
1869	260,563,879	1903	1,597,944,240
1870	277,538,134	1904	1,545,698,785
1871	267,868,126	1905	1,624,023,172
1872	637,232,823	1906	1,594,231,577
1873	428,747,043	1907	1,879,950,692
1874	611,495,197	1908	1,990,256,945
1875	618,063,315	1909	2,439,566,433
1876	595,073,177	1910	2,372,944,301
1877	586,953,022	1911	2,602,344,933
1878	584,578,036	1912	2,919,342,889
1879	549,142,610	1913	3,114,136,640
1880	666,399,985	1914	3,232,646,152
1881	659,835,762	1915	3,311,446,744
1882	608,555,960	1916	3,577,877,764
1883	765,729,430	1917	3,722,606,407

Summary, 1915-1917.

	1915	1916	1917
Total value of property as re- turned by auditors.....	\$3,157,965,465 00	\$3,420,871,174 00	\$3,560,446,059 00
Value of railroads as assessed by State Board of Equalization.....	153,481,279 00	157,006,590 00	162,160,348 00
Funded debt of counties.....	62,414,400 00	66,260,300 00	71,182,700 00
Floating debt with estimated in- terest of counties.....	214,214 43	109,965 00	105,505 92
Total county indebtedness.....	62,628,614 43	66,370,265 88	71,288,205 92
Number acres land assessed.....	-----	47,557,195	48,322,621

CALIFORNIA NATIONAL AND STATE BANKS.

(Compiled from the reports of the Comptroller of the Currency and of the California Superintendent of Banks.)

The following figures show the enormous financial resources of the State and the remarkable totals of some counties with a comparatively small population. The statements of the State and National banks, not being taken on the same day, the combined totals for the State are not exact, but for all practical purposes they are sufficient to prove the enormous wealth of this State, which as the following Summary shows amounts to upwards of one billion six hundred and seventy-one million dollars. During the last five years the total number of banks has increased by 32, the number being as follows:

Class	1912	1917
State banks	455	448
National banks	231	270
Totals	686	718

Their resources exhibit a wonderful expansion, since 1912 the State banks showing an increase of \$262,225,578, and the National banks an increase of \$240,696,005, or a combined total of \$502,921,583, which indicates a period of great prosperity. The Savings Bank deposits have increased from \$464,241 in 1912 to \$1,075,098 in 1917.

Total resources and liabilities of all reporting banks in California:

SUMMARY OF RESOURCES IN 1917.

State banks—	
Commercial banks	98
Departmental banks	221
Savings banks	122
Trust companies	7
Total (also 126 branch banks)	448
National banks	270
Total number of banks	718

State Banks Reporting on June 20, 1917.

Commercial banks	\$252,681,729 88
Savings banks	667,170,984 39
Trust companies	9,371,374 46
Total	\$929,224,088 73

National Banks Reporting on September 11, 1917.

National banks	741,910,000 00
Grand total	\$1,671,134,088 73
Postal savings funds	\$1,075,098 23

Among the counties, the two holding the largest amounts are, of course, San Francisco, with \$695,073,258.82, and Los Angeles with \$350,021,242.08, and Alameda County with Oakland \$115,331,236; but other counties also make a striking display of strength, no less than six having total resources amounting to between \$58,000,000 and \$21,000,000: Sacramento, San Joaquin, San Diego, Santa Clara, Fresno and Sonoma.

Three counties, Alpine, Mariposa and Mono, have no banks.

The following National Banks have been authorized to begin business in California since October 31, 1917: The First National Bank of Marysville First National Bank of Turlock, The Lodi National Bank, Lodi, The Cowchilla National Bank, The Sebastopol National Bank, The First National Bank of Gridley.

During 1916 and 1917 the Bank of Italy purchased a considerable number of banks in various counties, which have now become branches of the Bank of Italy, details of which are given on page 350.

Bank Clearings of Eight Cities, 1907-1917.

Year	Clearings	Year	Clearings
San Francisco— (135 banks)		Sacramento— (11 banks)	
1907	\$2,133,883,625 80	1907	
1908	1,757,141,850 08	1908	\$44,628,760 60
1909	1,979,872,570 06	1909	54,562,493 31
1910	2,323,772,870 99	1910	69,447,281 94
1911	2,427,075,543 46	1911	78,376,700 21
1912	2,677,561,952 27	1912	92,747,060 69
1913	2,624,428,824 74	1913	108,268,688 39
1914	2,516,004,816 78	1914	103,286,903 09
1915	2,693,688,925 69	1915	101,129,004 87
1916	3,479,862,482 31	1916	127,219,795 29
1917	4,837,854,956 20	1917	164,682,835 11
Los Angeles— (120 banks)		Fresno— (6 banks)	
1907	\$581,803,982 00	1907*	
1908	505,588,756 02	1908	
1909	673,165,728 81	1909	\$29,324,258 30
1910	811,387,487 47	1910	37,930,473 07
1911	922,914,526 09	1911	39,782,776 05
1912	1,168,941,700 02	1912	51,400,594 73
1913	1,211,168,979 18	1913	57,384,801 12
1914	1,145,167,110 19	1914	53,442,675 84
1915	1,048,090,667 10	1915	53,554,334 98
1916	1,292,961,997 13	1916	71,926,311 81
1917	1,502,250,332 23	1917	108,414,657 16
Oakland— (111 banks)		Stockton— (7 banks)	
1907	\$140,416,038 98	1907*	
1908	76,847,792 99	1908	\$24,415,671 88
1909	96,527,088 09	1909	28,301,936 22
1910	157,380,388 13	1910	32,277,582 57
1911	172,484,561 60	1911	40,350,889 35
1912	192,570,346 29	1912	44,891,763 06
1913	188,730,763 00	1913	45,925,831 09
1914	176,063,061 82	1914	47,257,207 00
1915	181,464,620 08	1915	50,241,377 00
1916	223,044,093 89	1916	71,802,911 00
1917	269,219,938 15	1917	93,433,000 00
San Diego— (10 banks)		San Jose— (5 banks)	
1907	\$49,194,870 02	1907	\$15,504,767 53
1908	37,771,349 22	1908	23,246,315 12
1909	52,094,521 82	1909	25,320,894 50
1910	67,173,976 93	1910	27,828,978 64
1911	86,724,333 47	1911	29,877,754 37
1912	131,894,087 37	1912	35,882,473 55
1913	134,145,293 00	1913	35,730,898 59
1914	103,102,297 90	1914	36,344,989 14
1915	99,636,940 70	1915	34,935,899 53
1916	112,043,265 29	1916	43,806,621 67
1917	120,621,933 08	1917	54,382,693 04

*Clearing house only organized this year, so the figures for the twelve months are not available.

†Not including branches.

ALAMEDA COUNTY.

National Banks.

Location and name of bank	Date of incorporation	Total resources and liabilities
Alameda—Alameda National Bank.....	Aug. 17, 1908	\$873,554 00
Citizens National Bank.....	Mar. 1, 1912	689,107 00
First National Bank.....	May 29, 1900	4,872,447 00
Emeryville—First National Bank.....	May 18, 1909	311,345 00
Hayward—First National Bank.....	May 23, 1911	369,275 00
Livermore—First National Bank.....	Dec. 11, 1905	476,945 00
Farmers and Merchants National Bank*.....	Jan. 3, 1911	*
Oakland—First National Bank.....	Apr. 10, 1875	5,192,545 00
Central National Bank.....	Aug. 12, 1909	15,687,021 00
Pleasanton—First National Bank.....	Dec. 5, 1910	223,238 00
San Leandro—First National Bank.....	June 28, 1910	677,814 00
Total		\$29,373,291 00

State Banks.

Alameda—Alameda Savings Bank.....	Jan. 17, 1880	\$3,464,819 80
Citizens' Savings Bank of Alameda.....	Mar. 6, 1906	1,215,244 47
Alvarado—Bank of Alameda County.....	Feb. 20, 1902	1,058,722 38
Berkeley—Berkeley Bank of Savings and Trust Co.	Jan. 27, 1892	7,547,531 70
West Berkeley Bank.....	Mar. 5, 1903	464,462 75
Centerville—Bank of Centerville.....	June 13, 1905	877,327 49
Hayward—Bank of Hayward.....	Feb. 26, 1891	295,391 36
Farmers' and Merchants' Bank of Hayward.....	Nov. 21, 1905	853,904 94
Hayward Bank of Savings.....	Jan. 2, 1906	591,807 57
Livermore—Livermore Savings Bank.....	Sept. 2, 1905	*
Livermore Valley Savings Bank.....	Oct. 6, 1905	627,862 81
Oakland—Bank of Fruitvale.....	July 17, 1906	514,041 09
The Citizens' Bank of Fruitvale.....	July 26, 1906	440,965 07
Central Savings Bank of Oakland.....	Sept. 8, 1891	16,070,723 86
Farmers' and Merchants' Bank.....	Nov. 12, 1892	2,643,523 25
First Savings Bank.....	Mar. 12, 1908	6,890,556 05
Oakland Bank of Savings.....	Aug. 21, 1867	33,029,729 19
Security Bank.....	Mar. 5, 1903	2,882,682 11
State Savings Bank.....	Mar. 24, 1893	1,440,985 63
Pleasanton—Bank of Pleasanton.....	Feb. 3, 1893	536,431 87
Amador Valley Savings Bank.....	Mar. 1, 1913	229,098 11
Emeryville—First Savings Bank.....	Mar. 21, 1914	223,503 16
Alvarado—The Bank of Alameda County.....	Dec. 16, 1916	1,058,722 38
San Leandro—Bank of San Leandro.....	Feb. 24, 1893	1,510,260 15
San Leandro State Bank.....	Aug. 4, 1911	541,160 49
Bank of Italy.....	Aug. 10, 1904	948,542 94
Total		\$85,957,945 62

*Purchased by Bank of Italy, January 27, 1917.

AMADOR COUNTY.

State Banks.

Jackson—Bank of Amador County.....	Nov. 23, 1896	\$1,528,045 72
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BUTTE COUNTY.**National Banks.**

Location and name of bank	Date of incorporation	Total resources and liabilities
Ohico—First National Bank.....	July 17, 1907	\$1,590,220 00
Butte County National Bank.....	Dec. 14, 1908	2,591,069 00
Oroville—First National Bank.....	Aug. 11, 1903	877,483 00
Rideout-Smith National Bank.....	May 31, 1888	1,369,011 00
Total		\$6,227,783 00

State Banks.

Biggs—Sacramento Valley Bank.....	Dec. 16, 1891	\$500,350 32
Ohico—The Peoples Savings and Commercial Bank.....	Mar. 30, 1914	406,953 98
Butte County Savings Bank.....	Aug. 14, 1905	1,555,157 09
Durham—The Commercial Bank of Durham.....	Nov. 19, 1912	90,033 25
Gridley—The Gridley State Bank.....	May 14, 1906	113,833 16
Oroville—Bank of Rideout, Smith & Co.....	May 31, 1888	484,912 39
Bank of Oroville.....	June 28, 1892	365,934 41
Total		\$3,517,174 60

CALAVERAS COUNTY.**State Banks.**

Angels Camp—Calaveras County Bank.....	April 3, 1900	\$880,544 16
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COLUSA COUNTY.**National Banks.**

Colusa—First National Bank.....	Aug. 29, 1911	\$459,398 00
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State Banks.

Arbuckle—Bank of Arbuckle.....	June 24, 1901	\$322,285 27
Colusa—Colusa County Bank.....	Sept. 15, 1870	2,784,444 97
First Savings Bank of Colusa.....	Feb. 13, 1902	294,915 92
Princeton—Bank of Princeton.....	April 18, 1912	188,876 48
Williams—Bank of Williams.....	June 17, 1892	621,915 73
Total		\$4,192,438 37

CONTRA COSTA COUNTY.

National Banks.

Location and name of bank	Incorporation	Total resources and liabilities
Walnut Creek—First National Bank.....	Oct. —, 1912	\$216,304 00
Antioch—First National Bank.....	Nov. 22, 1910	146,039 00
Concord—First National Bank.....	Mar. 9, 1911	635,939 00
Martinez—First National Bank of Contra Costa County.....	May 16, 1907	695,916 00
Richmond—First National Bank.....	April 21, 1910	833,504 00
Total.....		\$2,527,702 00

State Banks.

Antioch—The Antioch Bank of Savings.....	Nov. 12, 1910	\$217,088 09
Bank of Antioch.....	Sept. 14, 1891	710,111 40
Brentwood—Bank of Brentwood.....	April 1, 1913	162,994 97
Concord—Bank of Concord.....	Feb. 26, 1910	321,354 48
Martinez—Bank of Martinez.....	Oct. 7, 1873	1,280,166 97
Pinole—Bank of Pinole.....	Oct. 28, 1905	1,057,024 67
Pittsburg—Contra Costa County Bank.....	Nov. 30, 1903	574,786 21
Richmond—The Mechanics' Bank of Richmond.....	Aug. 3, 1907	1,090,143 34
Bank of Richmond.....	April 17, 1902	422,314 02
Richmond Savings Bank.....	June 12, 1911	702,401 91
Vallejo—Vallejo Commercial Bank.....	May 17, 1889	1,491,280 33
First Savings Bank.....	July 23, 1909	554,678 63
Walnut Creek—San Ramon Valley Bank.....	June 28, 1907	506,200 90
Total		\$9,090,545 92

DEL NORTE COUNTY.

State Banks.

Crescent City—Bank of Crescent City.....	Nov. 10, 1910	\$178,533 03
Del Norte County Bank.....	Mar. 16, 1900	348,085 11
Total		\$526,618 14

EL DORADO COUNTY.

State Banks.

Placerville—A. Mierson Banking Company.....	July 2, 1902	\$703,141 94
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FRESNO COUNTY.
National Banks.

Location and name of bank	Date of incorporation	Total resources and liabilities
Coalinga—First National Bank.....	Jan. 21, 1909	\$1,506,882 00
Clovis—First National Bank.....	June 21, 1912	194,687 00
Fowler—First National Bank.....	Sept. 6, 1904	546,293 00
Fresno—First National Bank.....	Mar. 16, 1885	6,752,567 00
Farmers National Bank.....	Dec. 27, 1898	4,205,391 00
Fresno National Bank*.....	Apr. 20, 1888	*
Union National Bank.....	May 31, 1907	2,086,054 00
Kerman—First National Bank.....	Sept. 9, 1908	155,087 00
Kingsburg—First National Bank.....	Oct. 18, 1906	366,487 00
Laton—First National Bank.....	July 21, 1910	164,587 00
Parlier—First National Bank.....	Jan. 4, 1912	293,221 00
Reedley—Reedley National Bank.....	Mar. 5, 1910	641,026 00
Riverdale—First National Bank.....	May 18, 1912	294,400 00
Reedley—First National Bank.....	Sept. 5, 1907	434,311 00
Sanger—First National Bank.....	Jan. 2, 1909	413,506 00
Selma—First National Bank.....	June 4, 1900	806,939 00
Selma—Selma National Bank.....	Dec. 2, 1912	364,626 00
Fowler—First National Bank.....	Aug. 25, 1904	546,293 00
Orosi—Orosi National Bank.....	Feb. 5, 1913	241,005 00
Del Rey—First National Bank.....	July 20, 1917	72,342 00
Total		\$19,537,913 00

State Banks.

Clovis—First State Bank of Clovis.....	Aug. 6, 1904	\$220,641 98
Fresno—Bank and Trust Co. of Central California	Feb. 26, 1887	1,801,107 44
Fresno Savings Bank.....	Mar. 16, 1910	951,542 02
The People's Savings Bank of Fresno*.....	Dec. 10, 1890	*
Kingsburg—Kingsburg Bank.....	Feb. 2, 1911	412,728 16
Selma—Selma Savings Bank.....	June 22, 1905	332,144 39
Farmers Savings Bank of Selma.....	Nov. 30, 1912	135,718 75
Sanger—Commercial Bank of Sanger.....	May 23, 1912	301,540 25
Bank of Italy.....	Aug. 10, 1904	4,251,021 87
Total		\$8,406,444 86

*Purchased by Bank of Italy October 21, 1916.

GLENN COUNTY.
National Banks.

Willows—First National Bank.....	Mar. 28, 1910	\$494,713 00
Orland—First National Bank.....	May 5, 1913	338,093 00
Total		\$832,806 00

State Banks.

Orland—Orland Savings Bank.....	Mar. 1, 1911	\$181,038 47
The Bank of Orland.....	Mar. 29, 1887	420,363 37
Willows—Bank of Willows.....	Sept. 2, 1880	1,564,990 68
Glenn County Savings Bank.....	Apr. 28, 1911	385,850 28
Total		\$2,552,242 80

HUMBOLDT COUNTY.

National Banks.

Location and name of bank	Date of incorporation	Total resources and liabilities
Eureka—First National Bank.....	Oct. 7, 1901	\$2,337,848 00
Scotia—First National Bank.....	June 16, 1910	318,091 00
Eureka—Humboldt National Bank of Eureka.....	May 1, 1914	940,008 00
Arcata—First National Bank.....	Mar. 29, 1913	240,023 00
Total		\$3,835,970 00

State Banks.

Arcata—The Bank of Arcata.....	Sept. 11, 1886	\$577,082 74
Arcata Savings Bank.....	Feb. 7, 1913	470,837 84
Eureka—Bank of Eureka.....	Oct. 4, 1889	1,154,100 86
Home Savings Bank.....	Oct. 21, 1889	1,318,271 58
The First Savings Bank of Eureka.....	Aug. 28, 1916	124,139 96
The Savings Bank of Humboldt County.....	Oct. 4, 1889	1,887,746 77
Ferndale—Ferndale Bank.....	Feb. 17, 1893	694,437 15
Russ Williams Banking Company.....	Nov. 17, 1909	273,507 56
Fortuna—Bank of Fortuna.....	Mar. 2, 1905	279,073 75
Loleta—Bank of Loleta.....	Sept. 7, 1910	147,783 93
Total		\$6,926,982 14

IMPERIAL COUNTY.

National Banks.

Brawley—First National Bank.....	Feb. 24, 1910	\$658,713 00
Calexico—First National Bank.....	Mar. 3, 1910	905,192 00
Calexico National Bank.....	Mar. 21, 1910	867,412 00
Calipatria—First National Bank of Calipatria.....	Jan. 6, 1915	172,607 00
El Centro—El Centro National Bank.....	Feb. 17, 1909	501,339 00
First National Bank.....	Feb. 25, 1909	1,119,276 00
Heber—First National Bank of Heber.....	Mar. 14, 1914	183,152 00
Holtville—First National Bank.....	June 4, 1910	506,933 00
Imperial—First National Bank.....	Nov. 19, 1901	591,434 00
Seeley—First National Bank.....	1913	102,478 00
Total		\$5,608,536 00

State Banks.

Brawley—Imperial Valley Bank.....	June 2, 1913	\$465,183 11
American State Bank.....	June 24, 1914	386,385 36
Calexico—The International Bank of Calexico.....	Sept. 27, 1916	110,277 32
El Centro—Security Commercial and Savings Bank of El Centro.....	May 17, 1912	269,310 21
Holtville—The Holtville Bank.....	Dec. 23, 1910	282,605 46
Imperial—Farmers and Merchants' Bank.....	Feb. 12, 1907	258,865 47
Total		\$1,772,636 93

INYO COUNTY.

National Banks.

Location and name of bank	Date of incorporation	Total resources and liabilities
Bishop—First National Bank of Bishop.....	May 25, 1917	\$67,182 00

State Banks.

Bishop—Inyo County Bank.....	Dec. 22, 1911	\$901,791 12
Owens Valley Bank.....	July 13, 1910	391,267 72
Total		\$1,293,058 84

KERN COUNTY.

National Banks.

Bakersfield—National Bank of Bakersfield.....	Mar. 6, 1913	\$868,855 00
First National Bank.....	Dec. 11, 1901	2,067,317 00
Delano—First National Bank.....	July 16, 1908	394,542 00
McFarland—First National Bank.....	May 13, 1913	175,602 00
Total		\$3,506,316 00

State Banks.

Bakersfield—First Bank of Bakersfield.....	Apr. 3, 1901	\$312,894 11
Producers' Savings Bank.....	Mar. 17, 1892	2,779,636 08
Security Trust Company.....	Oct. 7, 1910	4,010,916 29
Ardizzi-Olcese Bank.....	Dec. 19, 1916	556,639 12
Maricopa—Bank of Maricopa.....	Jan. 3, 1911	189,115 60
Tehachapi—Bank of Tehachapi.....	Sept. 16, 1892	233,615 36
Total		\$8,582,816 56

KINGS COUNTY.

National Banks.

Corcoran—First National Bank.....	Sept. 23, 1909	\$379,142 00
Hanford—First National Bank.....	June 17, 1901	1,961,407 00
Farmers and Merchants'.....	Mar. 24, 1905	1,014,976 00
Hanford National Bank.....	July 8, 1903	540,649 00
Lemoore—First National Bank.....	June 9, 1905	571,460 00
Hardwick—First National Bank.....	Mar. 31, 1917	99,056 00
Total		\$4,566,690 00

State Banks.

Hanford—Hanford Savings Bank.....	Oct. 8, 1891	\$415,235 85
The Old Bank.....	Nov. 26, 1901	1,037,744 70
The Peoples' Savings Bank.....	Oct. 15, 1903	189,734 22
Lemoore—Bank of Lemoore.....	Dec. 31, 1891	871,012 13
Total		\$2,513,726 90

LAKE COUNTY.

State Banks.

Location and name of bank	Date of incorporation	Total resources and liabilities
Lakeport—The Bank of Lakeport.....	Mar. 19, 1874	\$246,951 59
Farmers' Savings Bank.....	Dec. 14, 1874	371,025 89
Total		\$617,977 48

LASSEN COUNTY.

State Banks.

Susanville—Bank of Lassen County.....	Oct. 29, 1892	\$577,619 08
Lassen Industrial Bank.....	Apr. 5, 1912	576,569 77
Total		\$1,154,188 85

LOS ANGELES COUNTY.

National Banks.

Alhambra—First National Bank.....	Jan. 2, 1907	\$830,340 00
Artesia—First National Bank.....	Jan. 25, 1906	271,785 00
Azusa—First National Bank.....	Jan. 27, 1906	739,415 00
Baldwin Park—First National Bank.....	Jan. 25, 1915	127,562 00
Burbank—First National Bank.....	Nov. 8, 1911	249,415 00
Claremont—First National Bank.....	July 1, 1909	300,991 00
Compton—First National Bank.....	Feb. 10, 1906	432,571 00
Covina—First National Bank.....	May 22, 1901	697,159 00
Covina National Bank.....	May 14, 1906	341,820 00
El Monte—First National Bank.....	Oct. 12, 1903	456,284 00
Gardena—First National Bank.....	Sept. 10, 1913	359,218 00
Glendora—First National Bank.....	Apr. 19, 1907	271,111 00
Glendale—First National Bank.....	Nov. 27, 1905	612,607 00
Hollywood—First National Bank.....	Jan. 4, 1905	696,502 00
Hollywood National Bank.....	June 24, 1905	1,947,938 00
Hynes—First National Bank.....	Jan. 17, 1911	134,771 00
Inglewood—First National Bank.....	Apr. 4, 1908	344,619 00
Lamanda Park—First National Bank.....	Aug. 25, 1916	131,104 00
Long Beach—First National Bank.....	June 26, 1900	2,275,236 00
City National Bank.....	Sept. 11, 1907	1,413,681 00
Exchange National Bank.....	Jan. 10, 1907	1,748,389 00
Long Beach National Bank.....	Apr. 20, 1903	2,864,391 00
Lordsburg—First National Bank.....	Dec. 3, 1909	194,393 00
Los Angeles—First National Bank.....	Aug. 16, 1880	36,629,724 00
Citizens' National Bank.....	July 31, 1901	21,133,444 00
Commercial National Bank.....	July 1, 1903	4,738,256 00
Continental National Bank of Los Angeles.....	Nov. 4, 1914	1,876,209 00
Farmers and Merchants National Bank.....	Feb. 7, 1903	22,475,080 00
Merchants' National Bank.....	July 22, 1886	20,002,923 00
Security National Bank.....	Aug. 8, 1907	6,524,543 00
United States National Bank.....	Mar. 6, 1905	2,241,608 00
Monrovia—First National Bank.....	July 2, 1887	791,806 00
Monrovia National Bank.....	Apr. 22, 1905	368,762 00
Ocean Park—First National Bank.....	Apr. 14, 1905	544,925 00
Pasadena—First National Bank.....	May 10, 1886	2,736,613 00
Pasadena National Bank.....	Oct. 11, 1886	4,026,643 00
Security National Bank.....	Mar. 25, 1912	1,041,043 00
Union National Bank.....	May 1, 1908	3,645,871 00

LOS ANGELES COUNTY—Continued.

National Banks.

Location and name of bank	Date of incorporation	Total resources and liabilities
Pomona—First National Bank	June 10, 1886	\$2,112,252 00
California National Bank	Dec. 10, 1891	906,684 00
Puente—First National Bank	Nov. 26, 1910	426,545 00
Redondo Beach—First National Bank	Mar. 19, 1906	264,256 00
Farmers and Merchants' National Bank	Aug. 31, 1905	420,114 00
San Dimas—First National Bank	Aug. 17, 1911	583,098 00
San Fernando—First National Bank	Nov. 3, 1909	273,125 00
San Fernando—San Fernando National Bank	1912	321,579 00
San Pedro—First National Bank	Dec. 9, 1903	958,548 00
Santa Monica—Merchants' National Bank	Sept. 4, 1903	594,620 00
Sherman—First National Bank	July 1, 1917	207,759 00
Sierra Madre—First National Bank	May 23, 1907	272,623 00
South Pasadena—First National Bank	Feb. 14, 1907	257,730 00
Torrance—First National Bank	May —, 1913	178,789 00
Tropico—First National Bank	June 13, 1913	242,467 00
Van Nuys—First National Bank	Mar. 28, 1912	523,082 00
Venice—First National Bank	July 24, 1912	433,728 00
Whittier—First National Bank	Oct. 2, 1900	1,024,805 00
Whittier National Bank	Dec. 7, 1905	855,005 00
Wilmington—First National Bank	Aug. 23, 1909	304,557 00
Total		\$156,379,913 00

State Banks.

Alhambra—Alhambra Savings Bank	Jan. 20, 1906	\$438,527 52
Azusa—Azusa Valley Savings Bank	Aug. 20, 1891	275,351 60
Burbank—Burbank Savings Bank	Dec. 6, 1911	125,880 46
Farmers and Merchants Bank of Burbank	Mar. 27, 1913	84,443 82
Compton—Citizens' Savings Bank of Compton	Mar. 7, 1906	115,446 12
Farmers and Merchants Bank of Compton	Mar. 20, 1913	143,382 04
Culver City—Culver City Commercial and Savings Bank	Dec. 24, 1914	86,573 72
Covina—Covina Valley Savings Bank	Apr. 1, 1901	338,497 11
Downey—Bank of Downey (private)	Sept. 16, 1913	59,304 11
Los Nietos Valley Bank	July 20, 1891	413,423 11
Eagle Rock—Eagle Rock Bank	Feb. 20, 1907	139,895 19
El Segundo—El Segundo State Bank	Jan. 27, 1912	110,601 31
Gardena—Citizens State Savings Bank	Sept. 6, 1912	63,449 62
Glendale—Bank of Glendale	May 19, 1905	402,055 57
Glendale Savings Bank	Apr. 28, 1913	273,497 67
Glendora—Bank of Glendora	Dec. 8, 1884	301,871 80
The First Savings Bank of Glendora	Jan. 13, 1908	106,076 08
Huntington Park—Bank of Huntington Park	Nov. 24, 1905	290,437 19
Hollywood—Oltizens' Savings Bank	Jan. 13, 1906	971,125 55
Hollywood Savings Bank	Dec. 19, 1904	407,538 58
Hermosa Beach—First Bank of Hermosa Beach	Jan. 3, 1913	107,356 25
Inglewood—Citizens' Savings Bank of Inglewood	Nov. 21, 1910	144,717 79
Lankershim—Bank of Lankershim	July 18, 1910	111,695 89
Long Beach—Farmers and Merchants' Bank of Long Beach	Nov. 21, 1907	2,084,012 16
Long Beach Savings Bank and Trust Company	Feb. 1, 1902	2,915,323 71
Marine Commercial and Savings Bank	Apr. 21, 1914	729,781 36
Lordsburg—The Farmers and Merchants Bank of Lordsburg	Dec. 21, 1915	121,411 55
Lancaster—Antelope Valley Bank, Lancaster	May 10, 1915	224,917 20
Los Angeles—California Savings and Commercial Bank of Los Angeles	Nov. 30, 1915	5,416,050 76
Citizens Savings Bank of San Pedro	Aug. 14, 1903	531,969 76
Citizens Trust and Savings Bank	May 18, 1911	6,255,087 23
The Guaranty Trust and Savings Bank	Aug. 21, 1890	26,645,419 71
Highland Park Bank	Mar. 26, 1910	373,985 71
Home Savings Bank	Mar. 15, 1904	8,660,765 36
Hellman Commercial Trust and Savings Bank	Sept. 14, 1908	10,016,487 53

LOS ANGELES COUNTY—Continued.

State Banks.

Location and name of bank	Date of incorporation	Total resources and liabilities
Los Angeles—Continued.		
Hibernian Savings Bank.....	June 22, 1914	\$6,278,286 97
International Savings and Exchange Bank.....	Feb. 9, 1903	1,098,472 45
Kaspere Cohn Commercial and Savings Bank.....	June 22, 1914	2,526,076 36
Los Angeles Trust and Savings Bank.....	Jan. 17, 1902	29,919,364 19
Security Trust and Savings Bank.....	Jan. 11, 1899	57,837,746 40
Southern Trust Company.....	Oct. 24, 1904	263,888 66
Title Insurance and Trust Company.....	Dec. 22, 1893	810,642 01
Title Guarantee and Trust Company.....	Oct. 28, 1895	300,000 00
The Spalding Company.....	Mar. 9, 1908	272,964 88
Moneta—Moneta Commercial Bank.....	Nov. 25, 1910	153,107 91
Montebello—Montebello State Bank.....	July 20, 1912	184,293 37
Monrovia—Monrovia Savings Bank.....	July 27, 1888	621,090 47
Granite Savings Bank.....	July 27, 1903	216,950 98
Norwalk—Bank of Norwalk.....	Mar. 12, 1906	242,368 05
Owensmouth—State Bank of Owensmouth.....	Oct. 1, 1914	139,850 44
Puente—Puente Savings Bank.....	Jan. 29, 1917	70,434 25
Pomona—Savings Bank of Pomona.....	July 7, 1904	503,544 27
State Bank of Pomona.....	Mar. 30, 1906	746,923 73
Pasadena—Crown City Trust and Savings Bank.....	May 29, 1905	1,440,931 35
Citizens' Savings Bank of Pasadena.....	Sept. 28, 1912	1,339,987 43
Pasadena Trust and Savings Bank.....	Sept. 14, 1901	3,390,914 00
State Bank of Pasadena.....	Apr. 5, 1907	315,990 93
South Pasadena Savings Bank.....	Feb. 23, 1904	363,508 32
Union Trust and Savings Bank of Pasadena.....	Feb. 1, 1895	4,428,807 75
Central Bank of Pasadena.....	June 27, 1916	610,241 31
Redondo Beach—Redondo Savings Bank.....	July 22, 1905	146,662 30
Rivera—Rivera State Bank.....	May 5, 1910	158,249 25
San Dimas—San Dimas Savings Bank.....	June 20, 1911	126,759 86
San Pedro—Harbor City Savings Bank.....	Mar. 15, 1906	284,704 61
Bank of San Pedro.....	Mar. 26, 1888	479,791 96
State Bank of San Pedro.....	Jan. 7, 1901	924,739 50
Santa Monica—Merchants' Commercial and Sav- ings Bank of Ocean Park.....	May 6, 1911	223,650 92
Ocean Park Bank.....	Mar. 26, 1902	864,579 66
Bank of Santa Monica.....	Apr. 14, 1893	1,461,062 41
Sawtelle—Citizens' State Bank of Sawtelle.....	Sept. 20, 1906	361,295 34
Sherman—Bank of Sherman.....	Aug. 28, 1906	165,072 48
San Fernando—The San Fernando Valley Savings Bank.....	Mar. 8, 1917	74,822 35
San Gabriel—Bank of San Gabriel.....	Sept. 25, 1914	164,991 29
Venice—Venice Savings Bank.....	July 1, 1905	126,639 87
Vernon—Industrial Commercial and Savings Bank.....	May 5, 1916	242,401 41
Whittier—Home Savings Bank of Whittier.....	Oct. 31, 1903	615,516 15
The Whittier Savings Bank.....	Aug. 14, 1903	702,642 30
Total		\$193,641,329 08

MADERA COUNTY.

National Banks.

Madera—First National Bank.....	July 13, 1904	\$781,640 00
Chowchilla—First National Bank.....	Apr. 13, 1917	158,977 00
Total		\$940,617 00

State Banks.

Madera—Madera Savings Bank.....	Feb. 29, 1912	\$306,583 82
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MARIN COUNTY.

National Banks.

Location and name of bank	Date of incorporation	Total resources and liabilities
San Rafael—Marin County National Bank.....	Apr. 15, 1912	\$593,626 00

State Banks.

Mill Valley—Bank of Mill Valley.....	June 6, 1907	\$467,385 02
Novato—Novato Bank	July 30, 1913	148,374 45
San Anselmo—The First Bank of San Anselmo.....	Oct. 13, 1909	395,394 44
San Rafael—Bank of San Rafael.....	Dec. 23, 1910	1,191,241 18
Marin County Bank.....	Jan. 30, 1899	975,681 79
Sausalito—Bank of Sausalito.....	July 18, 1907	453,425 36
Tomaes—Bank of Tomaes.....	Mar. 12, 1900	654,982 83
Total.....		\$4,138,110 62

MENDOCINO COUNTY.

National Banks.

Fort Bragg—First National Bank.....	Jan. 5, 1910	\$680,485 00
Ukiah—First National Bank.....	Apr. 13, 1917	553,713 00
Total.....		\$1,234,198 00

State Banks.

Fort Bragg—Fort Bragg Commercial Bank.....	Mar. 28, 1912	\$356,220 11
The First Savings Bank of Fort Bragg.....	Jan. 11, 1910	211,414 80
Hopland—Bank of Hopland.....	Oct. 1, 1912	92,809 95
Mendocino—Mendocino Bank of Commerce.....	Sept. 1, 1905	267,286 25
Point Arena—Bank of Point Arena.....	June 3, 1905	115,499 33
Ukiah—Bank of Ukiah.....	Jan. 10, 1874	293,514 42
Commercial Bank of Ukiah.....	Dec. 18, 1903	324,536 14
Savings Bank of Mendocino County.....	Nov. 28, 1903	465,302 00
Willits—Bank of Willits.....	Apr. 11, 1904	561,446 11
Willits Commercial Bank.....	Aug. 22, 1914	146,523 07
Total.....		\$2,834,552 18

MERCED COUNTY.

National Banks.

Los Banos—First National Bank.....	Feb. 11, 1911	\$572,593 00
Farmers and Merchants National Bank of Merced.....	Jan. 4, 1913	875,186 00
Total.....		\$1,447,779 00

State Banks.

Gustine—Bank of Gustine.....	Sept. 13, 1913	\$318,415 17
Le Grand—Le Grand Bank.....	Apr. 1, 1913	169,555 12
Livingston—First Bank of Livingston.....	Nov. 1, 1913	130,794 02
Los Banos—Bank of Los Banos.....	Aug. 3, 1905	966,670 91
Merced—Merced Security Savings Bank.....	Mar. 11, 1875	2,641,937 27
Total.....		\$4,227,372 49

MODOC COUNTY.

National Banks.

Location and name of bank	Date of incorporation	Total resources and liabilities
Alturas—First National Bank.....	Apr. 20, 1904	\$622,048 00

State Banks.

Alturas—State Bank	Nov. 12, 1913	\$138,160 86
Oederville—Surprise Valley Bank.....	Apr. 18, 1905	275,130 34
Fort Bidwell—Bank of Fort Bidwell.....	Aug. 12, 1907	173,962 40
Total.....		\$449,092 74

MONTEREY COUNTY.

National Banks.

Claremont—Claremont National Bank.....	Dec. 31, 1912	\$211,948 00
Monterey—First National Bank.....	Dec. 9, 1903	518,700 00
Salinas—First National Bank.....	June 14, 1897	1,453,774 00
King City—First National Bank.....	Mar. 7, 1917	248,125 00
Total.....		\$2,220,599 00

State Banks.

Monterey—Bank of Monterey.....	Dec. 30, 1891	\$524,662 72
Monterey Savings Bank.....	May 17, 1911	559,551 79
Pacific Grove—Bank of E. Cooke Smith of Pacific Grove	Jan. 8, 1907	212,599 19
Bank of Pacific Grove.....	Nov. 17, 1903	545,654 27
Salinas—Salinas City Bank.....	May 10, 1873	1,927,780 62
Monterey County Bank.....	Mar. 27, 1917	2,214,839 41
Salinas Valley Savings Bank.....	Jan. 28, 1905	926,230 95
Total.....		\$6,911,318 95

NAPA COUNTY.

National Banks.

Callistoga—Callistoga National Bank.....	Oct. 1, 1909	\$279,104 00
Napa—First National Bank.....	Mar. 18, 1904	2,001,044 00
St. Helena—Carver National Bank.....	July 23, 1887	355,809 00
Total.....		\$2,635,957 00

State Banks.

Napa—Bank of Napa.....	Oct. 5, 1871	\$1,493,287 25
Jas. H. Goodman & Co. Bank*.....	June 11, 1889	
Bank of Italy.....	Aug. 10, 1904	686,504 09
St. Helena—Bank of St. Helena.....	Aug. 9, 1882	532,586 57
The Savings Bank of St. Helena.....	Jan. 29, 1892	475,823 05
Total		\$3,188,200 96

*Purchased by Bank of Italy January 27, 1917.

NEVADA COUNTY.

State Banks.

Location and name of bank	Date of incorporation	Total resources and liabilities
Grass Valley—Nevada County Bank.....	Oct. 12, 1900	\$1,684,102 42
Nevada City—Citizens' Bank.....	Sept. 21, 1876	1,455,025 08
Total.....		\$3,139,127 50

ORANGE COUNTY.

National Banks.

Yorba Linda—First National Bank.....	Sept. 29, 1916	\$86,413 00
Anaheim—First National Bank.....	Nov. 7, 1902	767,601 00
Anaheim National Bank.....	July 17, 1912	399,387 00
Fullerton—First National Bank.....	Dec. 26, 1900	613,909 00
Farmers' and Merchants' National Bank.....	Sept. 13, 1909	558,836 00
Huntington Beach—First National Bank.....	Aug. 11, 1905	300,806 00
Orange—First National Bank.....	Apr. 18, 1906	526,552 00
Orange National Bank.....	Oct. 25, 1910	857,998 00
Placentia—Placentia National Bank.....	Oct. 10, 1911	60,512 00
Santa Ana—First National Bank.....	June 15, 1886	3,542,761 00
California National Bank.....	Dec. 15, 1910	919,167 00
Farmers and Merchants National Bank.....	Nov. 17, 1905	2,133,880 00
Tustin—First National Bank.....	Jan. 31, 1912	337,413 00
Newport Beach—First National Bank.....	Jan. —, 1915	130,748 00
Olive—First National Bank.....	July 25, 1916	102,244 00
Total.....		\$11,348,227 00

State Banks.

Anaheim—The Southern County Bank.....	Sept. 20, 1912	\$377,136 98
American Savings Bank of Anaheim.....	May 8, 1905	327,150 36
German-American Bank.....	Oct. 30, 1905	569,053 83
Brea—La Habra Valley Bank.....	Mar. 27, 1912	128,406 69
Fullerton—Fullerton Savings Bank.....	June 14, 1906	445,540 93
Garden Grove—The Bank of Garden Grove.....	July 9, 1909	170,180 91
Huntington Beach—Savings Bank of Huntington Beach.....	July 1, 1905	82,766 46
La Habra—First Bank of La Habra.....	Jan. 5, 1914	139,315 44
Orange—Orange Savings Bank.....	Mar. 16, 1906	534,577 16
Security Savings Bank of Orange.....	Dec. 26, 1906	332,346 04
Placentia—Placentia Savings Bank.....	Nov. 20, 1916	90,486 45
Santa Ana—Home Savings Bank of Santa Ana.....	Dec. 1, 1905	517,023 51
Orange County Savings and Trust Company.....	Apr. 12, 1889	1,384,937 60
The Santa Ana Savings Bank.....	Mar. 25, 1902	613,492 54
Total.....		\$5,238,623 03

PLACER COUNTY.

National Banks.

Auburn—First National Bank.....	Aug. 25, 1908	\$270,030 00
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State Banks.

East Auburn—Placer County Bank.....	Oct. 5, 1887	\$980,760 27
Auburn Savings Bank.....	Sept. 16, 1898	366,132 35
Colfax—Colfax Bank.....	Aug. 12, 1907	198,193 39
Lincoln—Bank of Lincoln.....	Mar. 31, 1902	522,594 34
Bank of Western Placer.....	May 5, 1914	152,060 16
Loomis—Bank of Loomis.....	Mar. 27, 1913	170,445 97
Roseville—Roseville Banking Company.....	Mar. 5, 1903	462,606 89
Total.....		\$2,852,793 37

PLUMAS COUNTY.

State Banks.

Location and name of bank	Date of incorporation	Total resources and liabilities
Greenville—Indian Valley Bank.....	Jan. 2, 1912	\$173,527 40
Quincy—Plumas County Bank.....	Sept. 2, 1903	269,350 66
Total.....		\$442,878 06

RIVERSIDE COUNTY.

National Banks.

Banning—First National Bank.....	June 23, 1909	\$321,031 00
Conchella—First National Bank.....	Oct. 28, 1912	193,521 00
Corona—First National Bank.....	Aug. 11, 1905	585,718 00
Corona National Bank.....	Nov. 20, 1906	335,128 00
Riverside—Citizens' National Bank.....	Oct. 5, 1907	2,832,543 00
Riverside National Bank.....	Sept. 24, 1906	1,509,830 00
San Jacinto—First National Bank.....	Dec. 6, 1905	357,615 00
Temecula—First National Bank.....	May 5, 1914	161,181 00
Hemet—First National Bank.....	Aug. 6, 1915	380,618 00
Blythe—First National Bank.....	Jan. 26, 1917	210,718 00
Total.....		\$6,887,903 00

State Banks.

Beaumont—Bank of Beaumont.....	May 13, 1908	\$170,814 33
Corona—Citizens' Bank.....	Nov. 5, 1890	138,018 00
Elsinore—Consolidated Bank of Elsinore.....	Aug. 18, 1887	163,348 78
Hemet—Bank of Hemet.....	May 12, 1899	59,335 38
Farmers' and Merchants' Bank.....	May 6, 1907	252,921 61
Perris—Bank of Perris.....	Nov. 20, 1908	146,978 22
Riverside—Citizens' Bank of Arlington.....	Sept. 27, 1907	225,067 64
Peoples Trust and Savings Bank.....	Dec. 29, 1913	524,979 81
Security Savings Bank of Riverside.....	June 5, 1907	2,495,106 49
San Jacinto—First Savings Bank of San Jacinto.....	July 21, 1911	91,674 58
Total.....		\$4,268,265 13

SACRAMENTO COUNTY.

National Banks.

Sacramento—National Bank of D. O. Mills & Co.....	July 16, 1872	\$9,487,453 00
California National Bank.....	Jan. 5, 1907	12,044,151 00
Capital National Bank.....	Nov. 28, 1911	5,200,822 00
Fort Sutter National Bank.....	June 8, 1905	3,443,919 00
Total.....		\$30,176,445 00

State Banks.

Elk Grove—Bank of Elk Grove.....	Aug. 23, 1910	\$187,561 52
Fair Oaks—Fair Oaks Bank.....	Apr. 27, 1909	93,569 76
Folsom—Bank of Folsom.....	Nov. 14, 1910	251,779 89
Galt—Bank of Galt.....	Apr. 5, 1912	158,515 49
Sacramento—The California Savings Bank of Sacramento.....	Nov. 21, 1912	3,276,556 49
Farmers-Mechanics' Savings Bank.....	Sept. 20, 1890	3,220,689 62
People's Savings Bank.....	May 28, 1879	5,391,180 14
Sacramento Bank.....	Feb. 4, 1875	11,665,040 61
Citizens Bank of Sacramento.....	Oct. 30, 1909	182,008 68
The Sacramento Valley Bank and Trust Co.....	Mar. 31, 1910	2,966,454 22
The Nippon Bank.....	Sept. 19, 1907	208,416 94
Walnut Grove—Bank of Alex. Brown.....	July 3, 1913	835,502 99
Total.....		\$28,422,271 35

SAN BENITO COUNTY.

National Banks.

Location and name of bank	Date of incorporation	Total resources and liabilities
Hollister—First National Bank.....	Apr. 5, 1907	\$699,519 00

State Banks.

Hollister—Hollister Savings Bank.....	Feb. 11, 1892	\$704,081 48
Bank of Hollister*.....	Oct. 21, 1875	
Savings and Loan Bank of San Benito County*.....	Jan. 28, 1892	
Bank of Italy*.....	Aug. 10, 1904	2,082,683 67
Total		\$2,786,765 15

*Purchased by Bank of Italy Decemb r 16, 1916.

SAN BERNARDINO COUNTY.

National Banks.

Chino—First National Bank.....	1912	\$360,488 00
Colton—First National Bank.....	Oct. 18, 1886	555,444 00
Colton National Bank.....	Mar. 25, 1907	357,912 00
Cucamonga—First National Bank.....	Feb. 29, 1904	300,307 00
Ontario—First National Bank.....	May 22, 1902	817,202 00
Ontario National Bank.....	Feb. 24, 1911	585,898 00
Redlands—First National Bank.....	May 29, 1888	1,954,155 00
Redlands National Bank.....	May 16, 1904	1,474,515 00
Rialto—First National Bank.....	June 27, 1907	390,797 00
San Bernardino—Farmers Exchange	Mar. 29, 1907	927,667 00
American National Bank of San Bernardino.....	Dec. 30, 1917	631,644 00
San Bernardino National Bank.....	Nov. 26, 1887	1,849,801 00
Upland—First National Bank.....	June 13, 1906	511,487 00
Commercial National Bank.....	Oct. 29, 1909	647,002 00
Victorville—First National Bank.....	May 1, 1917	107,584 00
Total.....		\$11,371,908 00

State Banks.

Chino—Chino Savings Bank.....	Sept. 4, 1912	\$97,249 80
Highland—First Bank of Highland.....	Mar. 28, 1904	313,309 84
Needles—Bank of Needles.....	July 31, 1907	340,885 74
Monaghan & Murphy Bank.....	July 8, 1905	384,584 70
Ontario—Euclid Savings Bank.....	Mar. 17, 1890	214,302 92
Redlands—Savings Bank of Redlands.....	June 19, 1891	980,146 78
Union Savings Bank of Redlands.....	Apr. 7, 1904	1,123,189 77
San Bernardino—California State Bank of San Bernardino	Aug. 2, 1901	740,109 98
Savings Bank of San Bernardino.....	Dec. 2, 1889	760,382 90
The San Bernardino County Savings Bank.....	Apr. 27, 1903	2,597,479 68
Upland—Citizens' Savings Bank of Upland.....	May 11, 1906	199,699 14
Total.....		\$7,761,340 70

SAN DIEGO COUNTY.

National Banks.

Location and name of bank	Date of incorporation	Total resources and liabilities
Escondido—First National Bank.....	June 23, 1905	\$381,774 00
Escondido National Bank.....	Jan. 10, 1905	361,140 00
National City—People's National Bank.....	Aug. 18, 1909	246,243 00
Oceanside—First National Bank.....	Jan. 29, 1906	241,870 00
San Diego—First National Bank.....	Sept. 18, 1883	4,190,621 00
American National Bank.....	Oct. 1, 1904	3,771,979 00
Merchants' National Bank.....	Mar. 13, 1893	3,653,771 00
United States National Bank.....	May 15, 1913	893,439 00
Union National Bank.....	—, 1913	727,471 00
Total.....		\$14,468,306 00

State Banks.

Ohula Vista—People's State Bank.....	Oct. 17, 1890	\$181,326 71
Coronado—The Bank of Coronado.....	May 19, 1916	278,097 27
El Cajon—Cuyamaca State Bank.....	Nov. 5, 1907	163,709 39
Escondido—Home Savings Bank of Escondido.....	Apr. 21, 1909	172,113 50
Escondido Savings Bank.....	Mar. 28, 1905	348,077 00
Fallbrook—The Citizens' Commercial Bank.....	Oct. 19, 1910	108,616 95
La Mesa—Bank of Mesa.....	June 14, 1909	153,195 02
National City—National City State Bank.....	July 16, 1912	99,289 41
Ramona—The State Bank of Ramona.....	Aug. 9, 1911	115,107 72
San Diego—Bank of Commerce and Trust Co.....	Sept. 13, 1907	5,247,201 82
Citizens' Savings Bank of San Diego.....	Jan. 16, 1888	1,076,999 54
East San Diego State Bank.....	Jan. 2, 1918	221,219 11
Security Commercial and Savings Bank of San Diego.....	Aug. 14, 1913	857,146 84
Southern Trust and Savings Bank.....	June 8, 1907	4,083,347 94
The San Diego Savings Bank.....	Apr. 15, 1889	4,921,430 94
University Avenue Bank.....	Sept. 27, 1907	420,584 90
Union Trust Company of San Diego.....	Nov. 26, 1913	111,783 90
Total.....		\$18,837,345 23

SAN JOAQUIN COUNTY.

National Banks.

Location and name of bank	Incorporation Date of	Total resources and liabilities
Lodi—First National Bank.....	May 3, 1905	\$836,586 00
Stockton—First National Bank.....	Feb. 20, 1879	1,868,474 00
San Joaquin Valley National Bank	Jan. 19, 1916	6,233,311 00
Total.....		\$8,938,371 00

State Banks.

Lodi—Central Savings Bank of Lodi.....	Apr. 9, 1907	\$494,848 22
Bank of Lodi.....	June 7, 1888	1,019,608 60
Farmers and Merchants Bank of Lodi.....	May 24, 1916	137,079 73
Manteca—The First State Bank of Manteca.....	Nov. 28, 1911	277,746 36
Ripon—Bank of Ripon.....	May 2, 1910	251,213 05
Stockton—Commercial and Savings Bank of Stockton.....	June 26, 1903	4,880,523 32
Farmers' and Merchants' Bank of Stockton.....	Oct. 17, 1888	3,657,523 61
The San Joaquin Valley Bank*.....	Mar. 26, 1868	*3,700,255 85
The Stockton Savings and Loan Society.....	Aug. 13, 1867	6,446,632 83
Union Safe Deposit Bank.....	Apr. 21, 1897	1,029,098 93
City Bank.....	July 10, 1882	2,656,755 34
Tracy—Bank of Tracy.....	June 11, 1909	758,179 64
West Side Bank of Tracy.....	Nov. 12, 1910	640,086 85
Escalon—Escalon State Bank.....	June 13, 1912	195,383 67
Total.....		\$26,044,931 00

*Purchased by Bank of Italy, November 27, 1917.

SAN LUIS OBISPO COUNTY.

National Banks.

Paso Robles—First National Bank.....	Sept. 10, 1910	\$375,216 00
San Luis Obispo—Union National Bank.....	Aug. 22, 1905	923,151 00
Total.....		\$1,298,367 00

State Banks.

Arroyo Grande—Bank of Arroyo Grande.....	Nov. 7, 1903	\$373,713 21
Cambria—Bank of Cambria.....	Jan. 29, 1903	378,391 64
Paso Robles—Citizens' Bank of Paso Robles.....	Apr. 21, 1892	755,192 84
Commercial Bank of San Luis Obispo.....	Mar. 20, 1888	4,746,870 67
Total.....		\$6,254,168 36

SAN FRANCISCO COUNTY.

National Banks.

Location and name of bank	Date of incorporation	Total resources and liabilities
San Francisco—First National Bank.....	Nov. 30, 1870	\$31,745,187 00
American National Bank.....	Sept. 17, 1902	12,527,454 00
Anglo and London-Paris Bank.....	June 30, 1908	87,499,777 00
Bank of California National Association.....	Feb. 5, 1910	85,370,367 00
Crocker National Bank.....	Sept. 9, 1886	44,465,477 00
Mercantile National Bank.....	Mar. 2, 1910	17,190,057 00
Merchants' National Bank.....	Oct. 31, 1910	9,355,509 00
Seaboard National Bank.....	May 22, 1908	2,924,378 00
Wells-Fargo Nevada National Bank.....	Dec. 27, 1897	71,327,274 00
Total		\$362,405,480 00

State Banks.

San Francisco—Anglo-California Trust Company.....	Apr. 12, 1909	\$15,267,247 46
Bank of British North America (by royal charter)	—, 1840	2,341,977 12
Canadian Bank of Commerce.....	May 15, 1867	7,922,332 49
Canton Bank of San Francisco.....	Oct. 1, 1907	1,347,734 99
Columbus Savings and Loan Society.....	Jan. 18, 1893	3,010,158 36
Donohoe-Kelly Banking Company.....	Mar. 2, 1891	3,121,184 39
First Federal Trust Company.....	Aug. 23, 1907	9,886,102 77
French-American Bank of Savings.....	Feb. 1, 1860	9,458,242 52
Fugazi Banca Popolare Operaia Italiana.....	Nov. 29, 1906	8,602,797 84
Hibernia Savings and Loan Society.....	Sept. 6, 1864	69,529,295 01
Hongkong and Shanghai Banking Corporation (agency of).....	July 20, 1867	211,344 76
Humboldt Savings Bank.....	Nov. 25, 1869	10,562,885 58
Italian-American Bank (agency of).....	Mar. 16, 1899	8,472,960 96
Mercantile Trust Company of San Francisco.....	Apr. 18, 1899	1,288,530 63
Mutual Savings Bank of San Francisco.....	Nov. 21, 1899	11,156,197 43
Portuguese-American Bank of San Francisco.....	Nov. 29, 1905	2,486,914 37
Savings Union Bank and Trust Company.....	June 18, 1862	44,171,444 07
Security Savings Bank.....	Mar. 4, 1871	5,541,590 36
The German Savings and Loan Society.....	Feb. 15, 1868	63,991,308 77
The Bank of Italy*.....	Aug. 10, 1904	46,187,300 25
The Yokohama Specie Bank, Ltd.....	Feb. 28, 1880	9,499,905 72
The International Banking Corp. (agency of).....	June 14, 1901	1,516,102 77
The Mission Bank.....	Feb. 7, 1903	2,170,931 61
The Mission Savings Bank.....	Aug. 3, 1906	3,505,600 66
The Sumitomo Bank, Ltd., Osaka, Japan (agency of).....	Feb. 28, 1912	493,697 22
Union Trust Company of San Francisco.....	Feb. 6, 1893	31,623,990 71
Total		\$333,667,778 82

*The above statement includes the business of branch offices at San Francisco, Los Angeles, San Jose, San Mateo, Santa Clara, Merced, Gilroy, Fresno, Hollister, Livermore, Napa and Modesto. Purchased the Fresno National Bank, Fresno, October 21, 1916. Purchased Bank of Gilroy, Gilroy, October 21, 1916. Purchased Bank of Hollister, Hollister, December 16, 1916. Purchased the Savings and Loan Bank of San Benito County, Hollister, December 16, 1916. Purchased Peoples Savings Bank of Fresno, Fresno, December 30, 1916. Purchased Jas. H. Goodman & Co. Bank, Napa, January 27, 1917. Purchased Farmers and Merchants National Bank, Livermore, January 27, 1917. Purchased Livermore Savings Bank, Livermore, January 27, 1917. Purchased Farmers and Merchants Bank, Modesto, January 30, 1917. Purchased Security Savings Bank of Stanislaus County, Modesto, January 30, 1917. Added trust department, April 4, 1917.

SAN MATEO COUNTY.

National Banks.

Location and name of bank	Date of incorporation	Total resources and liabilities
Redwood City—First National Bank of San Mateo County	May 31, 1904	\$879,735 00
San Mateo—San Mateo National Bank	June 1, 1909	619,561 00
Total		\$1,499,296 00

State Banks.

Burlingame—Bank of Burlingame	Sept. 27, 1907	\$507,201 11
Half Moon Bay—Bank of Half Moon Bay	May 6, 1905	322,560 78
Redwood City—San Mateo County Savings Bank	Dec. 28, 1903	982,958 65
The Redwood City Commercial Bank	Oct. 10, 1904	285,702 29
The Savings and Trust Company of San Mateo County	Mar. 11, 1904	357,040 62
South San Francisco—Bank of South San Francisco	May 27, 1905	795,269 19
Total		\$3,250,732 64

SANTA BARBARA COUNTY.

National Banks.

Santa Barbara—First National Bank	May 7, 1873	\$2,696,839 00
Santa Barbara County National Bank	Feb. 21, 1880	1,840,707 00
Santa Maria—First National Bank	Nov. 18, 1904	637,971 00
Lompoc—First National Bank	Sept. 2, 1916	623,749 00
Total		\$5,799,266 00

State Banks.

Carpinteria—The Commercial and Savings Bank of Carpinteria	June 2, 1911	\$97,824 22
Farmers and Merchants Savings Bank	May 4, 1905	534,638 89
Lompoc—Lompoc Valley Bank	Apr. 1, 1905	337,580 16
Lompoc Valley Savings Bank	Apr. 1, 1905	523,915 66
Santa Barbara—The Commercial Bank	Aug. 17, 1887	2,359,491 82
Santa Barbara Savings and Loan Bank	Mar. 19, 1891	3,334,399 17
The Central Bank	Mar. 4, 1903	859,258 08
Santa Barbara Trust Company	July 1, 1916	111,111 91
Santa Maria—The Bank of Santa Maria	May 7, 1890	3,769,589 00
Valley Savings Bank	Aug. 31, 1901	324,263 62
Solvang—Santa Ynez Valley Bank	May 8, 1913	133,180 76
Total		\$12,140,960 62

SANTA CLARA COUNTY.

National Banks.

Location and name of bank	Date of incorporation	Total resources and liabilities
Gilroy—Bank of Gilroy*.....	May 10, 1912	
First National Bank.....	Mar. 25, 1912	\$659,641 00
Los Gatos—First National Bank.....	Oct. 10, 1911	262,493 00
Palo Alto—First National Bank.....	Dec. 17, 1903	997,966 00
San Jose—First National Bank.....	July 21, 1874	5,450,477 00
Mountain View—First National Bank.....	Feb. —, 1913	335,509 00
Total		\$7,706,086 00

*Purchased by Bank of Italy October 21, 1916. See State Banks.

State Banks.

Campbell—The Bank of Campbell.....	July 13, 1896	\$479,356 93
Los Gatos—The Bank of Los Gatos.....	Nov. 9, 1883	872,688 08
Saratoga—Saratoga State Bank.....	Sept. 10, 1913	220,564 39
Mayfield—Mayfield Bank.....	Dec. 30, 1904	153,368 88
Milpitas—Bank of Milpitas.....	Aug. 4, 1911	172,101 97
Morgan Hill—Bank of Morgan Hill.....	Oct. 14, 1905	239,833 49
Mountain View—Farmers and Merchants' State Bank.....	Sept. 16, 1905	700,672 26
Palo Alto—The Bank of Palo Alto.....	Oct. 18, 1892	1,226,368 41
San Jose—Bank of San Jose.....	Apr. 4, 1912	3,787,909 33
Garden City Bank and Trust Company.....	June 26, 1893	3,938,340 12
The San Jose Safe Deposit Bank of Savings.....	Apr. 29, 1885	5,962,258 95
Security Savings Bank of San Jose.....	June 23, 1891	1,940,719 03
Santa Clara—Mission Bank of Santa Clara.....	July 23, 1910	467,821 86
Sunnyvale—Bank of Sunnyvale.....	Dec. 8, 1905	246,948 68
The Security State Bank of San Jose.....	Mar. 24, 1902	814,534 54
Bank of Italy.....	Aug. 10, 1904	889,321 32
Total		\$22,112,806 39

SANTA CRUZ COUNTY.

National Banks.

Santa Cruz—First National Bank.....	Oct. 16, 1906	\$948,301 00
Santa Cruz County National Bank.....	May 2, 1910	980,210 00
Farmers and Merchants National Bank.....	June 30, 1914	446,329 00
Watsonville—Pajaro Valley National Bank.....	Dec. 30, 1909	1,009,113 00
Total		\$3,333,953 00

State Banks.

Santa Cruz—City Savings Bank.....	Dec. 6, 1887	\$1,911,525 05
People's Savings Bank.....	Apr. 26, 1892	607,948 80
Santa Cruz Bank of Savings and Loan.....	Mar. 10, 1870	1,701,338 53
Watsonville—Bank of Watsonville.....	May 11, 1874	586,300 33
Pajaro Valley Savings Bank.....	July 18, 1888	1,000,339 48
Watsonville Savings Bank.....	Dec. 8, 1890	843,974 03
Total		\$6,651,426 22

SHASTA COUNTY.
National Banks.

Location and name of bank	Date of Incorporation	Total resources and liabilities
Redding—Northern California National Bank.....	Nov. 9, 1911	\$777,190 00
Redding National Bank.....	Aug. 24, 1911	1,038,933 00
Total		\$1,816,123 00

State Banks.

Redding—Redding Savings Bank.....	Mar. 23, 1910	\$671,639 36
The First Savings Bank of Shasta County.....	Nov. 28, 1911	1,098,950 67
Total		\$1,770,590 03

SIERRA COUNTY.
State Banks.

Loyalton—Sierra Valley Bank.....	Sept. 1, 1906	\$174,626 26
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SISKIYOU COUNTY.
National Banks.

McCloud—McCloud National Bank.....	July 14, 1909	\$687,001 00
Weed—First National Bank.....	Oct. 18, 1910	507,251 00
Yreka—First National Bank.....	Apr. 28, 1915	241,098 00
Total		\$1,435,350 00

State Banks.

Dorris—Butte Valley State Bank.....	June 26, 1908	\$124,597 60
Dunsmuir—State Bank of Dunsmuir.....	Apr. 2, 1904	252,382 00
Fort Jones—Scott Valley Bank.....	Feb. 4, 1902	710,207 53
Montague—Montague Banking Company.....	Dec. 26, 1906	383,649 64
Yreka—First Savings Bank of Siskiyou.....	Sept. 27, 1909	543,443 71
Siskiyou County Bank.....	Sept. 6, 1882	824,673 64
Total		\$2,838,954 12

SOLANO COUNTY.
National Banks.

Dixon—First National Bank.....	Jan. 2, 1912	\$502,888 00
Suisun City—First National Bank.....	Feb. 28, 1912	438,314 00
Vacaville—First National Bank.....	June 23, 1910	425,166 00
Valejo—First National Bank.....	Nov. 1, 1909	1,515,136 00
Fairfield—First National Bank.....	1917	60,626 00
Rio Vista—First National Bank of Rio Vista.....	Mar. 30, 1915	361,112 00
Total		\$3,308,242 00

State Banks.

Benicia—People's Bank of Benicia.....	June 15, 1904	\$392,966 71
Dixon—Bank of Dixon.....	Oct. 30, 1873	865,539 02
Northern Solano Savings Bank.....	Dec. 12, 1911	172,800 35
Rio Vista—Bank of Rio Vista.....	Apr. 12, 1904	651,887 57
Suisun—Bank of Suisun.....	Feb. 7, 1876	1,902,769 63
Solano County Savings Bank.....	Apr. 3, 1905	261,944 48
Total		\$4,247,907 76

SONOMA COUNTY.

National Banks.

Location and name of bank	Date of incorporation	Total resources and liabilities
Healdsburg—First National Bank.....	May 1, 1912	\$938,939 00
Healdsburg National Bank.....	May 21, 1912	618,262 00
Petaluma—Sonoma County National Bank.....	Jan. 11, 1911	2,097,738 00
Petaluma National Bank.....	July 31, 1903	1,813,540 00
Sonoma—First National Bank.....	1912	240,348 00
Santa Rosa—Santa Rosa National Bank.....	Sept. 15, 1886	1,498,595 00
Sebastopol—First National Bank.....	Jan. 31, 1910	510,329 00
Total		\$7,717,751 00

State Banks.

Cloverdale—Bank of Cloverdale.....	Feb. 25, 1884	\$430,373 58
Geyserville—Bank of Geyserville.....	June 22, 1903	174,276 20
Guerneville—Bank of Guerneville.....	Oct. 31, 1905	161,802 95
Healdsburg—Farmers and Mechanics' Savings Bank of Healdsburg.....	Mar. 16, 1912	506,850 85
Healdsburg Savings Bank.....	May 25, 1912	379,278 71
Petaluma—The California Savings Bank.....	June 23, 1905	1,802,469 53
The Petaluma Savings Bank.....	Sept. 7, 1870	1,316,493 98
Swiss-American Bank.....	Apr. 9, 1910	2,174,743 93
Santa Rosa—Exchange Bank.....	Apr. 3, 1890	1,204,930 53
Santa Rosa Bank.....	Aug. 31, 1870	1,204,736 83
Savings Bank of Santa Rosa.....	Mar. 10, 1873	1,782,342 44
Union Trust Savings Bank.....	June 24, 1905	764,466 78
Sebastopol—The Analy Savings Bank.....	Feb. 18, 1904	480,829 54
Sebastopol Savings Bank.....	Dec. 18, 1909	310,915 93
Sonoma—Sonoma Valley Bank.....	June 9, 1875	771,972 62
Valley Ford—Dairyman's Bank.....	Mar. 17, 1893	615,965 27
Total		\$14,082,411 67

STANISLAUS COUNTY.

National Banks.

Crows Landing—First National Bank.....	June 1, 1910	\$168,223 00
Modesto—First National Bank.....	Mar. 7, 1884	1,785,586 00
California National Bank of Modesto.....	May 4, 1917	359,408 00
Newman—First National Bank.....	May 25, 1910	654,649 00
Oakdale—First National Bank.....	Dec. 5, 1904	1,007,248 00
Riverbank—First National Bank of Riverbank.....	1913	90,900 00
Total		\$4,066,014 00

State Banks.

Ceres—Bank of Ceres.....	Mar. 28, 1911	\$269,587 62
Hughson—The Bank of Hughson.....	Nov. 9, 1910	185,495 03
Modesto—Farmers and Merchants' Bank*.....	Mar. 25, 1903	
Modesto Savings Bank.....	Mar. 8, 1905	1,135,761 79
The Modesto Bank.....	Oct. 28, 1873	1,092,041 55
Security Savings Bank of Stanislaus County*.....	May 15, 1905	
Union Savings Bank.....	Apr. 29, 1889	1,158,958 95
Newman—Bank of Newman.....	May 4, 1903	1,162,891 47
Oakdale—Stanislaus County Savings Bank.....	Jan. 23, 1905	422,960 23
Commercial State Bank.....	Aug. 29, 1912	200,480 53
Patterson—Bank of Patterson.....	May 23, 1911	219,637 43
Turlock—Commercial Bank of Turlock.....	Feb. 27, 1907	1,413,106 80
People's State Bank.....	May 6, 1907	545,868 21
Bank of Italy.....	Aug. 10, 1904	1,079,220 23
Total		\$8,886,029 84

*Purchased by Bank of Italy, January 30, 1917.

SUTTER COUNTY.**National Banks.**

Location and name of bank	Date of incorporation	Total resources and liabilities
Yuba City—First National Bank of Yuba City.....	Dec. 19, 1912	\$718,836 00

State Banks.

Yuba City—Savings Bank of Sutter County.....	May 15, 1912	\$598,863 14
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TEHAMA COUNTY.**National Banks.**

Red Bluff—Red Bluff National Bank.....	Dec. 11, 1911	\$941,512 00
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State Banks.

Corning—The Bank of Corning (private).....	July 9, 1913	\$300,345 44
Tehama County Savings Bank.....	Sept. 6, 1912	200,860 66
Red Bluff—The Bank of Tehama.....	Sept. 5, 1874	2,580,198 63
Total		\$3,091,404 73

TRINITY COUNTY.**State Banks.**

Weaverville—Trinity County Bank.....	Sept. 13, 1900	\$196,470 68
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TULARE COUNTY.**National Banks.**

Ducor—First National Bank.....	Dec. 26, 1912	\$335,628 00
Dinuba—First National Bank.....	June 4, 1908	610,373 00
United States National Bank.....	June 3, 1908	300,359 00
Exeter—First National Bank.....	Mar. 27, 1909	506,504 00
Lindsay—First National Bank.....	Oct. 27, 1905	689,371 00
Lindsay National Bank.....	Mar. 25, 1910	685,065 00
Porterville—First National Bank.....	June 1, 1903	2,112,739 00
Terra Bella—First National Bank.....	Nov. 18, 1910	352,827 00
Tulare—First National Bank.....	Apr. 2, 1907	1,029,585 00
Tulare National Bank.....	May 18, 1912	1,069,959 00
Visalia—First National Bank.....	Dec. 12, 1903	1,751,288 00
Visalia National Bank.....	June 24, 1908	1,975,131 00
Woodlake—First National Bank of Woodlake.....	Jan. 9, 1913	411,138 00
Total		\$11,829,967 00

State Banks.

Dinuba—Dinuba Savings Bank.....	June 19, 1911	\$187,084 74
Exeter—The Security Savings Bank of Exeter.....	May 5, 1916	105,594 15
Lindsay—The Lindsay Savings Bank.....	Mar. 3, 1910	284,686 14
Porterville—Pioneer Bank.....	Apr. 18, 1889	927,347 44
Tulare—Savings Bank of Tulare.....	Nov. 13, 1913	109,447 95
Visalia—Producers' Savings Bank.....	Dec. 30, 1905	461,277 97
The Visalia Savings Bank.....	Jan. 27, 1891	873,102 86
Total		\$2,948,511 25

TUOLUMNE COUNTY.

National Banks.

Location and name of bank	Date of incorporation	Total resources and liabilities
Jamestown—Jamestown National Bank.....	Apr. 1, 1913	\$184,335 00
Sonora—First National Bank.....	Apr. 6, 1904	1,962,805 00
Total		\$2,147,140 00

State Banks.

Jamestown—First Bank of Jamestown.....	June 11, 1912	\$116,974 44
Sonora—Tuolumne County Bank.....	May 12, 1898	542,917 54
Total		\$659,891 98

VENTURA COUNTY.

National Banks.

Oxnard—First National Bank.....	July 19, 1909	\$1,814,172 00
Santa Paula—First National Bank.....	Sept. 13, 1889	884,445 00
Ventura—First National Bank.....	Apr. 13, 1904	1,024,966 00
Ventura National Bank.....	Mar. 2, 1910	1,452,231 00
Total		\$5,175,814 00

State Banks.

Camarillo—Farmers Bank	Apr. 10, 1916	\$139,027 04
Fillmore—Fillmore State Bank.....	Oct. 13, 1905	396,258 25
Hueneme—Bank of Hueneme.....	Feb. 28, 1889	205,559 23
Nordhoff—Ojai State Bank.....	Jan. 8, 1907	339,888 82
Oxnard—Bank of A. Levy, Inc.....	July 20, 1905	2,007,736 85
Oxnard Savings Bank.....	Oct. 4, 1904	622,284 78
Santa Paula—Santa Paula Savings Bank.....	Nov. 28, 1905	218,297 63
Farmers and Merchants' Bank.....	Dec. 20, 1905	900,286 82
Ventura—Ventura Savings Bank.....	Dec. 31, 1900	963,333 27
Home Savings Bank of Ventura.....	Sept. 15, 1904	374,422 57
Total		\$6,167,095 26

YOLO COUNTY.
National Banks.

Location and name of bank	Date of incorporation	Total resources and liabilities
Winters—First National Bank.....	Jan. 29, 1912	\$411,138 00
Woodland—First National Bank.....	July 31, 1909	975,021 60
Bank of Woodland, National Association.....	July 11, 1916	1,215,048 00
Total		\$2,601,207 00

State Banks.

Davis—The Bank of Davis.....	May 8, 1913	\$225,050 96
Esparto—The Bank of Esparto.....	Mar. 6, 1913	220,119 80
Winters—Citizens' Bank of Winters.....	June 13, 1907	389,586 53
Savings Bank of Winters.....	Nov. 23, 1911	107,181 21
Woodland—Home Savings Bank of Woodland.....	June 22, 1909	1,560,106 38
The Bank of Yolo.....	Jan. 27, 1883	1,496,485 92
Yolo County Savings Bank.....	Dec. 9, 1891	1,624,325 82
Total		\$5,622,856 62

YUBA COUNTY.
State Banks.

Marysville—Decker-Jewett & Company.....	Nov. 12, 1888	\$862,697 72
Northern California Bank of Savings.....	Dec. 7, 1889	2,464,570 88
The Rideout Bank.....	Nov. 1, 1890	3,342,713 02
Wheatland—The Farmers' Bank of Wheatland.....	Oct. 21, 1874	284,733 62
Total		\$6,954,715 24

TABLE LI.
Summary of the Resources of State and National Banks by Counties in 1912 and 1917.

Counties	State banks, total, 1912	National banks, total, 1912	Grand total, 1912	State banks, Total, 1917	National banks, Total, 1917	Grand total, 1917
1. Alameda	\$60,416,474 90	\$21,187,351 00	\$81,603,825 90	\$85,957,945 62	\$29,373,291 00	\$115,331,236 62
2. Alpine	998,325 36	-----	998,325 36	-----	-----	1,528,045 72
3. Amador	3,196,826 54	3,009,129 00	6,205,955 54	3,517,174 60	6,227,783 00	9,744,957 60
4. Butte	703,872 09	-----	703,872 09	880,544 16	-----	880,544 16
5. Calaveras	-----	-----	-----	-----	-----	-----
6. Colusa	3,473,436 70	293,814 00	3,767,250 70	4,192,438 37	459,398 00	4,651,836 37
7. Contra Costa	5,257,459 36	2,116,734 00	7,374,193 36	9,090,545 92	2,527,702 00	11,618,247 92
8. Del Norte	349,913 80	-----	349,913 80	526,618 14	-----	526,618 14
9. El Dorado	551,126 06	-----	551,126 06	703,141 94	-----	703,141 94
10. Fresno	4,667,553 52	12,252,587 00	16,920,140 52	19,537,913 00	8,406,444 86	27,944,357 86
11. Glenn	2,048,009 08	417,699 00	2,465,708 08	2,552,242 80	832,806 00	3,385,048 80
12. Humboldt	6,603,758 66	1,947,174 00	8,550,932 66	6,926,962 14	3,835,970 00	10,762,932 14
13. Imperial	400,587 37	1,950,691 00	2,351,278 37	1,772,636 93	5,608,536 00	7,381,172 93
14. Inyo	898,358 86	-----	898,358 86	1,293,058 84	67,182 00	1,360,240 84
15. Kern	5,116,515 08	2,857,824 00	7,974,339 08	8,582,816 56	3,506,316 00	12,089,132 56
16. Kings	1,624,784 66	3,134,319 00	4,759,103 66	2,513,726 90	4,566,690 00	7,080,416 90
17. Lake	512,197 08	-----	512,197 08	617,977 48	-----	617,977 48
18. Lassen	468,023 16	466,023 16	934,046 32	1,154,188 85	-----	1,154,188 85
19. Los Angeles	138,491,449 03	106,618,807 00	247,110,256 03	193,641,329 08	156,379,913 00	350,021,242 08
20. Madera	128,417 91	837,391 00	965,808 91	308,583 82	940,617 00	1,249,200 82
21. Marin	2,441,324 29	503,152 00	2,944,476 29	4,138,110 62	593,626 00	4,731,736 62
22. Mariposa	-----	-----	-----	-----	-----	-----
23. Mendocino	2,137,519 82	531,664 00	2,769,183 82	2,894,552 18	1,234,198 00	4,088,750 18
24. Merced	4,152,369 61	1,017,009 00	5,169,378 61	4,227,372 49	1,447,779 00	5,675,151 49
25. Modoc	525,263 19	474,629 00	999,892 19	449,092 74	622,048 00	1,071,140 74
26. Mono	-----	-----	-----	-----	-----	-----
27. Monterey	4,832,007 09	1,362,886 00	6,194,893 09	6,911,318 95	2,220,599 00	9,131,917 95
28. Napa	3,212,427 87	1,437,788 00	4,650,215 87	3,188,200 96	2,635,957 00	5,824,157 96
29. Nevada	2,334,541 59	-----	2,334,541 59	3,139,127 50	-----	3,139,127 50
30. Orange	3,150,279 20	7,840,668 00	10,990,947 20	5,298,623 03	11,348,227 00	3,122,823 03

31. Placer	1,683,654 19	137,084 00	1,820,738 19	2,852,798 37	270,030 00	3,122,823 37
32. Plumas	401,018 26		401,018 26	442,878 08		442,878 08
33. Riverside	3,633,032 63	6,123,629 00	9,756,661 63	4,268,265 63	6,887,903 00	11,156,168 13
34. Sacramento	16,293,527 73	21,398,466 00	37,698,993 73	28,422,271 35	30,176,445 00	58,598,716 35
35. San Benito	2,553,132 73	497,033 00	3,052,165 73	2,796,765 15	699,519 00	3,486,284 15
36. San Bernardino	5,145,369 97	9,398,483 00	14,545,852 97	7,761,340 70	11,371,908 00	19,133,243 40
37. San Diego	13,013,982 95	11,358,440 00	24,372,422 95	18,837,345 23	14,468,306 00	33,305,653 23
38. San Francisco	263,637,301 39	240,847,963 00	504,685,264 39	*333,667,778 82	362,405,480 00	696,073,258 82
39. San Joaquin	18,001,785 98	1,797,765 00	19,799,550 98	26,044,931 00	8,638,371 00	34,963,302 00
40. San Luis Obispo	3,980,825 81	749,138 00	4,729,963 81	6,254,168 36	1,298,367 00	7,552,535 36
41. San Mateo	2,546,781 96	1,106,527 00	3,653,308 96	3,250,732 64	1,499,296 00	4,750,028 64
42. Santa Barbara	8,016,769 64	2,694,002 00	10,700,771 64	12,140,960 62	5,799,266 00	17,940,226 62
43. Santa Clara	18,326,615 88	5,055,840 00	23,382,455 88	22,112,806 39	7,706,066 00	29,818,894 39
44. Santa Cruz	6,128,625 44	2,544,193 00	8,672,818 44	6,651,426 22	3,333,953 00	9,985,379 22
45. Shasta	848,515 43	1,215,879 00	2,064,394 43	1,770,580 08	1,816,123 00	3,586,713 08
46. Sierra	70,194 13		70,194 13	174,626 26		174,626 26
47. Siskiyou	1,923,690 93	816,968 00	2,740,658 93	2,838,954 12	1,435,350 00	4,274,304 12
48. Solano	4,213,902 74	1,637,745 00	5,851,647 74	5,090,097 51	3,303,242 00	8,363,339 51
49. Sonoma	10,916,974 01	6,560,222 00	17,477,196 01	14,082,411 67	7,717,751 00	21,800,162 67
50. Stanislaus	5,603,483 73	2,259,887 00	7,863,370 73	8,886,029 84	4,069,014 00	12,952,043 84
51. Sutter	482,012 48		482,012 48	598,963 14	718,836 00	1,317,699 14
52. Tehama	2,300,052 58	339,710 00	2,639,762 58	3,091,404 73	941,512 00	4,032,916 73
53. Trinity	194,132 01		194,132 01	196,470 68		196,470 68
54. Tulare	2,005,977 43	6,823,704 00	8,829,681 43	2,948,541 25	11,829,967 00	14,778,508 25
55. Tuolumne	517,608 26	976,417 00	1,494,025 26	659,891 96	2,147,140 00	2,007,031 96
56. Ventura	3,588,334 23	4,219,399 00	7,807,733 23	6,167,085 26	5,175,814 00	11,342,909 26
57. Yolo	6,070,197 53	856,135 00	6,926,332 53	5,622,856 62	2,601,207 00	8,224,063 62
58. Yuba	4,984,099 55		4,984,099 55	6,954,715 24		6,954,715 24
Totals	\$686,998,510 30	\$501,218,995 00	\$1,188,212,505 30	\$929,224,088 73	\$741,910,000 00	\$1,671,134,088 73

*Includes the resources of branches of the Bank of Italy in Alameda, Fresno, Napa, San Benito, Santa Clara, and Stanislaus counties, which are also included in the totals of those counties in order that the county totals may be complete.

INSURANCE.*

LIFE, FIRE, MARINE, AND MISCELLANEOUS.

The total number of life insurance companies and fraternal societies operating in this state in 1916 is one hundred and four, classified as follows:

Classification of Life Companies Licensed in California.

Kind of company	California	Other states	Foreign
Life (Stock) -----	6	27	-----
Life (Mutual) -----	1	16	-----
Life (Assessment) -----	1	5	-----
Fraternal -----	3	45	1
Totals -----	10	93	1

Industrial Life Premiums and Losses, 1907-1916.

The following summary shows that the premiums received on industrial life business in California during the past ten years amount to \$16,837,768.37 and the losses and claims paid, \$4,280,905.40:

Year	Premiums	Losses and claims paid
1907 -----	\$845,188 77	\$212,701 78
1908 -----	920,484 78	225,829 95
1909 -----	1,058,790 00	275,574 95
1910 -----	1,285,416 24	305,356 64
1911 -----	1,466,804 96	354,320 28
1912 -----	1,724,786 67	420,678 02
1913 -----	1,943,320 96	509,252 59
1914 -----	2,201,025 05	556,374 33
1915 -----	2,500,166 24	671,221 28
1916 -----	2,892,004 75	749,595 58
Totals -----	\$16,837,768 37	\$4,280,905 40

Life Insurance, 1907-1916.

Year	Premiums received	Losses and endorsements paid
1907 -----	\$11,017,267 20	\$4,995,417 25
1908 -----	11,658,903 26	4,343,935 04
1909 -----	12,557,869 31	4,404,398 96
1910 -----	13,501,003 98	4,771,862 70
1911 -----	14,811,167 84	5,719,644 03
1912 -----	16,718,297 79	6,449,765 86
1913 -----	18,454,772 20	6,944,709 28
1914 -----	19,831,311 69	6,913,169 58
1915 -----	20,789,182 26	8,668,960 09
1916 -----	22,068,066 85	8,721,798 31

*Report for 1917 not yet issued.

Fraternal Societies, 1916.

There are 49 Fraternal Societies operating in California. The total assets amounted to \$183,556,442 and the liabilities, \$62,126,938. The total membership was 4,459,634 on December 31, 1916, and the membership in California 165,135.

Fire and Marine Insurance, 1906-1916.

The total number of insurance companies and associations which transacted fire and marine insurance in the state of California during the period ending December 31, 1916, is one hundred ninety-four, classified as follows:

Classification of Fire and Marine Companies, 1916.

Kind of company and class	California	Other states	Foreign
Fire and Marine—			
Stock -----	4	101	51
Mutual -----		9	
County Mutual -----	19		
Interinsurance -----		10	
Totals -----	23	120	51

Fire Insurance, 1907-1916.

The following summary shows the premiums received and the losses paid in California during the past ten years:

Year	Premiums received	Losses paid	Ratio of losses to premiums
1907 -----	\$16,242,105 95	\$7,008,085 97	43.1
1908 -----	14,442,623 40	5,345,988 35	37.0
1909 -----	15,094,210 60	5,795,279 57	38.4
1910 -----	15,900,524 11	6,013,426 48	37.8
1911 -----	16,154,908 01	4,604,219 19	28.5
1912 -----	16,258,040 76	5,569,008 97	34.3
1913 -----	15,897,255 09	7,101,298 64	44.6
1914 -----	16,564,373 64	6,754,608 76	40.8
1915 -----	16,451,546 33	7,910,764 97	48.8
1916 -----	17,181,070 02	5,758,367 16	33.6

*Losses owing to the great San Francisco fire.

Marine Insurance, 1907-1916.

Year	Premiums received	Losses paid	Ratio of losses to premiums
1907 -----	\$1,885,535 22	\$1,276,704 91	67.7
1908 -----	1,864,861 07	994,487 39	53.3
1909 -----	1,952,269 99	1,368,892 35	70.1
1910 -----	2,180,135 74	1,689,066 81	77.4
1911 -----	2,321,318 35	1,375,225 59	59.2
1912 -----	2,667,902 00	779,238 00	29.2
1913 -----	2,464,976 07	2,011,324 81	81.5
1914 -----	2,594,263 90	1,408,158 97	54.3
1915 -----	3,152,539 75	1,641,968 82	52.9
1916 -----	3,619,096 65	1,890,979 08	-----

The following tabulation shows that during the past ten years the county mutuals have collected in premiums and assessments \$820,429, and paid out in losses \$497,562:

Year	Premiums and assessments received	Losses paid
1907	\$30,517 81	\$8,251 05
1908	32,964 22	19,865 40
1909	38,961 60	34,200 58
1910	47,985 15	25,389 29
1911	66,103 20	31,854 69
1912	112,096 49	53,269 78
1913	98,594 11	71,905 04
1914	132,545 81	74,484 73
1915	136,430 23	100,419 05
1916	124,229 25	77,920 37
Totals	\$820,429 87	\$497,562 96

CASUALTY AND MISCELLANEOUS COMPANIES.

Classification of Companies in California, 1916.

Kind of company	California	Other states	Foreign
Casualty and miscellaneous	2	46	5
Interinsurance	6	2	
Mortgage	2		
Title	7		
Totals	17	48	5

Summary of Premiums Received and Losses Paid in 1916.

(By Miscellaneous Companies.)

Number	Company	Premiums received	Losses paid
50	Accident and Health	\$2,385,633 16	\$918,224 58
29	Liability insurance	1,325,045 59	363,629 88
29	Workmen's Compensation Insurance	4,582,894 38	2,594,914 76
19	Fidelity and Surety	1,104,250 58	280,815 32
9	Boiler and Machinery	73,715 08	476 60
27	Burglary and Theft	179,432 55	63,096 26
23	Plate Glass	207,911 24	61,988 76
7	Title insurance	1,064,762 10	10,351 37
2	Mortgage	61,775 74	
	Automobile insurance—		
37	By miscellaneous companies	936,285 87	276,320 81
	All other classes (miscellaneous)	65,301 05	13,408 13
	Totals	\$11,976,907 34	\$4,588,166 47
54	Automobile insurance by fire companies	1,319,702 39	593,057 02

RAILROADS IN CALIFORNIA, JUNE 30, 1916.

Name of company	General office	Length of road owned	Total railway capital June 30, 1916	Amount per mile of line
Amador Central	Martell	12	\$421,157 00	\$35,096 00
Arcata and Mad River	Arcata	31.25	457,500 08	21,061 00
Atchison, Topeka and Santa Fe	Los Angeles	11,080.87	601,394,673 89	62,942 00
Bay Point and Clayton	San Francisco	8.19	225,298 92	27,509 00
Boca and Loyalton	San Francisco	42.35	1,861,088 19	43,945 00
Buckport and Elk River	Eureka	8.73	262,804 75	30,104 00
California Central		7.947	2,328,856 97	292,985 00
California, Shasta and Eastern Ry. Co.		1	200,000 00	
California Southern		30.88	448,270 10	14,517 00
California Western Railroad and Navigation Co.	San Francisco	42.85	2,050,545 43	47,854 00
Camino, Placerville and Lake Tahoe Railroad Co.	Camino	8.05	200,000 00	24,844 00
Cement, Tolenas and Tidewater	San Francisco	3.56	260,121 57	73,069 00
Clear Lake Railroad Co.		1	85,684 86	
Chowchilla Pacific		10.22	103,661 17	10,143 00
Colusa and Hamilton		1	1,518,225 15	
Death Valley Railroad Co.		20.35	404,654 32	19,884 00
Diamond and Caldor	Oakland	33	500,737 08	15,174 00
Hueneme, Malibu and Southern R. R. Co.		1		
Holten Interurban	Redlands	10.47	336,439 32	32,134 00
Iron Mountain Railway Co.	San Francisco	11	100,000 00	9,090 00
Lake Tahoe Ry. and Transportation Co.	Tahoe	14.75	1,173,531 70	79,561 00
Los Angeles and San Diego Beach Ry. Co.	San Diego	17.61	892,202 27	50,664 00
McCloud River Railroad Co.	San Francisco	89.77	2,976,527 17	33,157 00
Mojave Northern Railroad Co.		5.50	80,553 50	14,646 00
Mount Tamalpais and Muir Woods Railroad Co.		11.34	447,559 88	39,467 00
Nevada-California-Oregon Railroad	Reno, Nev.	277.44	4,236,789 21	15,551 00
Northwestern Pacific Railroad Co.	San Francisco	511.70	65,084,697 10	128,962 00
Nevada County Narrow Gauge R. R. Co.	Grass Valley	21.90	812,291 94	37,091 00
Ocean Shore Railroad Co.	San Francisco	53.70	5,599,096 73	105,601 00
Pacific Coast Railroad Co.	Seattle, Wash.	103.06	2,877,599 52	27,924 00
Pajaro Valley Consolidated Railroad Co.	San Francisco	41.36	606,402 59	14,637 00
Patterson and Western Railroad Co.		1	128,918 11	
Quincy Western Railway Co.	Quincy	5.29	79,840 54	15,098 00
Riverside, Rialto and Pacific Railroad Co.		9.78	514,291 43	52,586 00
Sacramento Valley and Eastern Railway	Winthrop	15	547,074 87	36,471 00
San Diego and Arizona	San Diego	48.69	3,567,807 71	73,276 00
San Diego and Southeastern	San Diego	73.47	1,906,626 42	26,951 00
San Joaquin and Eastern		55.92	1,197,157 40	21,408 00
San Pedro, Los Angeles and Salt Lake	Los Angeles	1,024.18	77,282,095 50	75,457 00
Santa Maria Valley	Santa Maria	17.77	339,432 25	18,474 00
Sierra Railway Co. of California	Jamestown	75.95	5,685,104 28	74,195 00
Southern Pacific Co.	San Francisco	22.77	113,471,759 61	553,672 00
South San Francisco Belt	San Francisco	3.08	89,653 44	29,108 00
Stockton Terminal and Eastern R. R. Co.	Stockton	18.50	342,612 53	18,519 00
Stone Canyon Railroad Co.		21.06	334,068 43	11,130 00
Sugar Pine Railroad Co.	Sonora	14.15	1,812,638 11	92,766 00
Sunset Railroad Co.	Los Angeles	50.10	1,691,854 01	33,769 00
Tonopah and Tidewater	Oakland	167.59	4,123,202 38	24,632 00
Trona Railroad Co.		30.40	642,808 38	21,145 00
Ventura County	Oxnard	21.20	291,856 83	13,743 00
Western Pacific	San Francisco	940.72	156,752,006 95	166,630 00
Yosemite Valley	Merced	79.17	9,389,432 74	118,598 00
Yreka Railroad Co.	San Francisco	7.50	133,403 04	17,787 00
Totals		15,197.117	\$1,078,424,334 82	\$2,797,005 00

¹Under construction.

Leased Railroads, 1916.
(Statement of Total Cost of Road and Equipment.)

Name of company	Length of road, miles	Total cost to June 30, 1916	Average investment per mile
The California, Arizona and Santa Fe Railroad Co.....	834.03	\$74,351,615 20	\$89,150 00
Central Pacific	2,308.29	282,061,758 56	122,195 00
Coast Line Railroad Co.....	11.91	714,433 48	59,956 00
Hanford and Summit Lake Railroad.....	42.41	777,794 30	18,340 00
Inter-California	96.07	2,151,844 62	22,385 00
Laton and Western.....	17.57	316,136 56	17,958 00
Minkler Southern	50.66	1,305,171 83	25,947 00
Porterville Northeastern	18.30	534,569 82	29,211 00
Richmond Belt Railroad	5.09	635,447 23	124,665 00
Southern Pacific Railroad Co.....	3,108.30	288,992,823 57	92,977 00
South Pacific Coast Railroad Co.....	96.72	11,500,000 00	118,899 00
Totals.....	6,589.25	\$683,461,600 17	\$782,770 00

Electric Railways Operated in California.
(Year ending June 30, 1916.)

Name of company	Mileage operated	Total cost	Amount per mile
Angels Flight Railroad Co.....	.0767	\$25,000 00	\$325,945 00
Bakersfield and Kern Electric Railroad Co.....	10.51	342,000 00	32,540 00
California Street Cable	11	1,360,000 00	123,636 00
Castro Point Railway and Terminal Co. ¹		11,000 00	86,424 00
Central California Traction Co.....	76.668	5,167,300 00	67,372 00
Fresno City Railroad Co. ²		584,000 00	71,744 00
Fresno Traction Co.....	45.013	5,719,000 00	155,099 00
Fresno Interurban	15	176,200 00	11,746 00
Glendale and Montrose	8.995	50,000 00	5,621 00
Humboldt Transit Co.....	13	684,000 00	52,615 00
Los Angeles Corporation Railroad.....	391.58	40,000,000 00	116,141 00
Martinez and Concord Interurban Railway Co. ³			
Modesto and Empire Traction Co.....	6.55	5,000 00	6,666 00
Monterey and Pacific Grove Railroad Co.....	5.5	570,000 00	103,636 00
Montecito Railroad Co.....	1.46	20,000 00	13,700 00
Nevada County Traction Co.....	5.71	188,000 00	32,924 00
Northern Electric Railroad Co.....	165.56	29,855,000 00	181,655 00
Northern Electric—Marysville and Colusa Branch.....	26.3	2,250,000 00	85,551 00
Oakland and Antioch Railway ⁴		5,500,000 00	132,852 00
Oakland, Antioch and Eastern Railway.....	134.77	11,645,500 00	191,821 00
Pacific Electric Railway.....	1,069.497	132,490,000 00	135,052 00
Peninsular Railroad Co.....	80.387	12,500,000 00	163,591 00
Petaluma and Santa Rosa Railroad Co.....	44.07	1,896,100 00	42,344 00
Point Loma Railroad Co.....	8.45	390,000 00	44,970 00
Sacramento Gas and Electric Co.....	43.09		
Sacramento Terminal Co.....		400,000 00	63,225 00
Sacramento Valley Electric Railroad Co.....	12.32	435,405 80	35,341 00
Sacramento and Woodland Railroad Co.....	19.51	1,750,000 00	89,697 00
San Diego Electric Railroad Co.....	71.71	8,881,000 00	123,846 00
San Francisco, Napa and Callstoga Railroad Co.....	44.522	3,185,200 00	71,544 00
San Francisco-Oakland Terminal Railroad Co.....	262.84	48,046,500 00	182,851 00
San Jose Railroad.....	42.69	7,562,000 00	183,143 00
Santa Barbara and Suburban Railroad Co.....	8.99	904,000 00	100,566 00
South San Francisco Railroad and Power Co.....	3.439	15,500 00	3,925 00
Stockton Electric Railroad Co.....	25.513	500,000 00	25,650 00
San Ramon Valley Railroad	4	350,000 00	33,112 00
Tidewater Southern Railroad Co.....	36.189	1,361,049 15	42,229 00
Union Traction Co.....	14.67	1,361,000 00	94,128 00
United Railroads of San Francisco.....	286.022	79,994,800 00	299,036 00
Visalia Electric Co.....	49.111	24,000 00	739 00
Totals.....	2,994.4537	\$406,276,454 95	\$33,484,755 00

¹Under construction.²Included in Pacific Gas and Electric report.³Operated by Northern Electric Railroad Company.⁴Operated by Oakland, Antioch and Eastern Railway.⁵Leased to Fresno Traction Company.

APPENDIX A.

CALIFORNIA STATE BOARD OF AGRICULTURE

State Boards of Agriculture and Agricultural Experiment Stations in the United States.

STATE BOARDS OF AGRICULTURE AND EXPERIMENT STATIONS.

There are 43 official bodies or organizations in the United States charged with the promotion of agriculture. Of these 20 are "State Boards of Agriculture"; 19 are governed by a "Commissioner of Agriculture;" 3, California, Georgia and Minnesota have a "State Agricultural Society," and Pennsylvania a "Secretary of Agriculture." Of the above, California is the only one with a dual title, that of the "State Agricultural Society" and "State Board of Agriculture," added in 1863. There are also 60 agricultural experiment stations, conducted, in most cases, under the authority of the state universities.

The first agricultural experiment stations were formed some forty years ago, one of the pioneers being that of the State University at Berkeley in 1873. They were subsequently reorganized under the Hatch Act of 1887, which largely extended the number of these most valuable institutions.

Stallion Registration Boards.

The first law regulating the registration of stallions was passed by the state of Wisconsin in 1906, since which time nineteen other states have taken this important step to improve the breed of their horses.

California State Agricultural Society.

(Incorporated May 13, 1854. State Board of Agriculture appointed March 12, 1863.)

The California State Agricultural Society was one of the first to be organized, and ranks as fifth in the United States.

The first State Fair was held in the Music Hall at San Francisco from the fourth to about the twelfth of October, 1854, and the stock show was held on the Pioneer race course. A fair has been held annually ever since—in 1855 at Sacramento, 1856 at San Jose, 1857 at Stockton, 1858 at Marysville, and since then at Sacramento, except in 1915, when it was omitted on account of the Panama-Pacific International Exposition at San Francisco.

CALIFORNIA STATE FAIRS, 1854-1918.

Year	Place	Date	Premiums	Races	Total	Presidents
1854	San Francisco	Oct. 4.	\$4,680	-----	\$1,000	F. W. Macondry, San Francisco.
1855	Sacramento	Sept. 23-Oct. 1.	6,550	-----	6,550	O. T. Hutchinson, Sacramento.
1856	San Jose	Oct. 7-10.	6,746	-----	6,746	E. L. Beard, Alameda.
1857	Stockton	Sept. 29-Oct. 2.	7,991	-----	7,991	O. M. Weber,* Stockton.
1858	Marysville	Aug. 23-28.	7,435	-----	7,435	John C. Fall, Marysville.
1859	Sacramento	Sept. 13-23.	8,139	-----	8,139	C. T. Hutchinson, Sacramento.
1860	Sacramento	Sept. 19-26.	8,827	-----	8,827	T. G. Phelps, San Mateo.
1861	Sacramento	Sept. 16-21.	7,231	-----	7,231	Jerome O. Davis, Yolo County.
1862	Sacramento	Aug. 31-Sept. 4.	-----	-----	5,000	A. Haraszthy, Sonoma.
1863	Sacramento	Sept. 25-Oct. 3.	4,894	-----	4,894	Judge Isaac Davis, Yolo County.
1864	Sacramento	Oct. 17-22.	6,105	-----	6,105	C. F. Reed, Grafton, Yolo County.
1865	Sacramento	Sept. 18-23.	10,658	-----	10,658	C. F. Reed, Grafton, Yolo County.
1866	Sacramento	Sept. 10-15.	9,712	-----	9,712	C. F. Reed, Grafton, Yolo County.
1867	Sacramento	Sept. 9-14.	9,954	-----	9,954	C. F. Reed, Grafton, Yolo County.
1868	Sacramento	Sept. 15-25.	-----	-----	10,000	C. F. Reed, Grafton, Yolo County.
1869	Sacramento	Sept. 6-11.	-----	-----	-----	C. F. Reed, Grafton, Yolo County.
1870	Sacramento	Sept. 12-17.	-----	-----	30,000	C. F. Reed, Grafton, Yolo County.
1871	Sacramento	Sept. 18-23.	-----	-----	40,000	C. F. Reed, Grafton, Yolo County.
1872	Sacramento	Sept. 19-23.	-----	-----	20,000	C. F. Reed, Grafton, Yolo County.
1873	Sacramento	Sept. 15-20.	8,925	14,200	23,125	R. S. Carey, Yolo.
1874	Sacramento	Sept. 21-23.	9,619	15,950	25,569	R. S. Carey, Yolo.
1875	Sacramento	Sept. 15-26.	9,214	13,330	22,544	R. S. Carey, Yolo.
1876	Sacramento	Sept. 18-23.	-----	-----	-----	R. S. Carey, Yolo.
1877	Sacramento	Sept. 17-22.	-----	-----	-----	Marion Biggs, Butte.
1878	Sacramento	Sept. 16-21.	10,965	13,775	24,740	Marcus D. Boruck, San Francisco.
1879	Sacramento	Sept. 8-13.	-----	12,280	12,280	Hugh M. Larue, Sacramento.
1880	Sacramento	Sept. 20-25.	6,502	14,887	21,387	Hugh M. Larue, Sacramento.
1881	Sacramento	Sept. 19-24.	6,603	12,525	19,128	J. M. McShaffer, San Francisco.
1882	Sacramento	Sept. 11-16.	8,651	14,262	22,913	Hugh M. Larue, Sacramento.
1883	Sacramento	Sept. 10-15.	8,915	11,006	22,920	P. A. Fingan, Alameda.
1884	Sacramento	Sept. 8-20.	11,467	23,165	34,632	P. A. Fingan, Alameda.
1885	Sacramento	Sept. 10-19.	13,612	25,145	38,757	Jesse D. Carr, Salinas.
1886	Sacramento	Sept. 9-18.	13,370	22,900	36,270	Jesse D. Carr, Salinas.
1887	Sacramento	Sept. 15-21.	14,538	23,470	38,008	L. U. Shippee, Stockton.
1888	Sacramento	Sept. 6-15.	14,256	25,590	38,816	L. U. Shippee, Stockton.
1889	Sacramento	Sept. 12-21.	17,056	30,890	47,916	Christopher Green, Sacramento.
1890	Sacramento	Sept. 11-20.	15,761	27,016	42,777	Christopher Green, Sacramento.
1891	Sacramento	Sept. 8-19.	17,628	30,081	47,709	Frederick Oox, Sacramento.
1892	Sacramento	Sept. 5-17.	17,106	29,950	47,056	Frederick Oox, Sacramento.
1893	Sacramento	Sept. 4-16.	13,244	32,715	45,959	John Boggs, Princeton, Colusa Co.
1894	Sacramento	Sept. 3-15.	13,447	29,220	42,667	John Boggs, Princeton, Colusa Co.
1895	Sacramento	Sept. 2-14.	11,416	32,890	44,296	C. M. Chase, San Francisco.
1896	Sacramento	Sept. 1-19.	12,971	47,222	60,193	C. M. Chase, San Francisco.
1897	Sacramento	Sept. 6-18.	20,252	35,247	55,499	C. M. Chase, San Francisco.
1898	Sacramento	Sept. 5-17.	20,143	28,170	48,313	A. B. Spreckels, San Francisco.
1899	Sacramento	Sept. 4-16.	10,529	38,745	49,274	A. B. Spreckels, San Francisco.
1900	Sacramento	Sept. 3-15.	9,768	38,745	48,513	A. B. Spreckels, San Francisco.
1901	Sacramento	Sept. 2-14.	8,974	30,353	39,329	A. B. Spreckels, San Francisco.
1902	Sacramento	Sept. 8-20.	15,000	40,280	55,280	A. B. Spreckels, San Francisco.
1903	Sacramento	Aug. 31-Sept. 12.	15,000	31,435	46,435	Benjamin F. Rush, Suisun.
1904	Sacramento	Aug. 22-Sept. 3.	15,000	25,97	43,957	Benjamin F. Rush, Suisun.
1905	Sacramento	Sept. 2-9.	6,656	24,419	31,075	Benjamin F. Rush, Suisun.
1906	Sacramento	Aug. 25-Sept. 1.	7,598	10,610	18,640	Benjamin F. Rush, Suisun.
1907	Sacramento	Sept. 2-14.	11,153	14,914	26,067	Benjamin F. Rush, Suisun.
1908	Sacramento	Aug. 29-Sept. 5.	11,277	13,410	24,687	H. A. Jastro, Bakersfield.
1909	Sacramento	Aug. 28-Sept. 4.	14,183	14,665	28,848	H. A. Jastro, Bakersfield.
1910	Sacramento	Sept. 3-10.	14,465	6,990	21,395	H. A. Jastro, Bakersfield.
1911	Sacramento	Aug. 26-Sept. 2.	14,790	26,300	41,090	A. L. Scott, San Francisco.
1912	Sacramento	Sept. 14-21.	20,000	17,000	37,000	A. L. Scott, San Francisco.
1913	Sacramento	Sept. 13-20.	25,000	37,000	62,000	A. L. Scott, San Francisco.
1914	Sacramento	Sept. 12-19.	18,609	37,000	55,609	A. L. Scott, San Francisco.
1915	Sacramento	†	-----	-----	-----	John M. Perry, Stockton.
1916	Sacramento	Sept. 2-9.	41,538	16,570	58,036	John M. Perry, Stockton.
1917	Sacramento	Sept. 8-15.	27,171	20,048	47,219	John M. Perry, Stockton.
1918	Sacramento	Aug. 31-Sept. 8.	45,000	22,500	67,500	George C. Roeding, Fresno.

*Resigned March 10. Wm. Garrard appointed.

†No fair owing to the Panama-Pacific Exposition at San Francisco.

Many of the books and records of the Society were destroyed by a disastrous flood on the 9th of December, 1861, and 9th of January, 1862, caused by a break in the levee on the north side of Sacramento, and the Library, together with a complete set of the Annual Reports, was destroyed by fire on the 3d of September, 1916, when the main building was burned to the ground.

**STATE BOARDS OF AGRICULTURE AND DEPARTMENTS OF AGRICULTURE
IN THE UNITED STATES (43).***

State	Description and location	Organized
Alabama	Commissioner of Agriculture, Montgomery	1888
Arkansas	Commissioner of Agriculture, Little Rock (Society)	1898
California	State Board of Agriculture	1854
Colorado	State Board of Agriculture, Fort Collins	1877
Connecticut	Commissioner of Agriculture, Hartford	1886
Delaware	State Board of Agriculture, Dover	1901
Florida	Commissioner of Agriculture, Tallahassee	1889
Georgia	Georgia State Agricultural Society, Experiment	1846
Georgia	Commissioner of Agriculture, Atlanta	1874
Idaho	Commissioner of Immigration, Labor and Statistics, Boise	1900
Illinois	State Board of Agriculture, Springfield	1853
Indiana	State Board of Agriculture, Indianapolis	1851
Iowa	State Board of Agriculture, Des Moines	1900
Kansas	State Board of Agriculture, Topeka	1862
Kentucky	Commissioner of Agriculture, Frankfort	1892
Louisiana	Commissioner of Agriculture, Baton Rouge	1880
Maine	Commissioner of Agriculture, Augusta	1855
Massachusetts	State Board of Agriculture, Boston	1852
Michigan	State Board of Agriculture, East Lansing	1881
Minnesota	State Agricultural Society, Hamline	1854
Mississippi	Commissioner of Agriculture, Jackson	1907
Missouri	State Board of Agriculture, Columbia	1865
Montana	Commissioner of Agriculture (Bureau of Agriculture, Labor, Industry and Publicity), Helena	1889
Nebraska	State Board of Agriculture, Lincoln	1858
Nevada	State Board of Agriculture, Carson City	
New Hampshire	State Board of Agriculture, Concord	1870
New Jersey	State Board of Agriculture, Trenton	1873
New York	Commissioner of Agriculture, Albany	1893
North Carolina	Commissioner of Agriculture, Raleigh	1877
North Dakota	Commissioner of Agriculture, Bismarck	1889
Ohio	State Board of Agriculture, Columbus	1846
Oklahoma	State Board of Agriculture, Stillwater	1907
Oregon	State Board of Agriculture, Salem	1861
Pennsylvania	Secretary of Agriculture, Harrisburg	1895
Rhode Island	State Board of Agriculture, Providence	1892
South Carolina	Commissioner of Agriculture, Columbia	1904
South Dakota	State Board of Agriculture, Huron	1884
Tennessee	Commissioner of Agriculture, Nashville	1875
Texas	Commissioner of Agriculture, Austin	1906
Vermont	Commissioner of Agriculture, Plainfield	1872
Virginia	Commissioner of Agriculture, Richmond	1888
West Virginia	Commissioner of Agriculture, Charleston	1891
Wisconsin	State Board of Agriculture, Madison	1897

*Not including Alaska, Guam, Hawaii, Philippine Islands and Porto Rico.

AGRICULTURAL EXPERIMENT STATIONS (60*).

State	Description and location	Date of original organisation	Organized under Hatch Act of March 2, 1887
Alabama	(College) Auburn	1872	Feb. 24, 1888
Alabama	(Canebrake) Uniontown	1885	Apr. 1, 1888
Alabama	(Tuskegee Institute) Tuskegee	Feb. 15, 1897	
Arizona	(State University of Tucson)	1885	1890
Arkansas	Fayetteville		Mar. 7, 1889
California	(State University) Berkeley	1873	Mar., 1888
Colorado	Fort Collins		Feb., 1888
Connecticut	(State) New Haven	Mar. 21, 1877	May 18, 1887
Connecticut	(Storrs) Storrs		May 18, 1887
Delaware	Newark		Feb. 21, 1888
Florida	Gainesville		1888
Georgia	Experiment	1888	July 1, 1889
Idaho	Moscow		Feb. 26, 1892
Illinois	Urbana		Mar. 21, 1888
Indiana	Lafayette		Jan. 1, 1888
Iowa	Ames		Feb. 17, 1888
Kansas	Manhattan		Feb. 8, 1888
Kentucky	Lexington	Sept. 25, 1885	Apr., 1888
Louisiana	(Sugar) New Orleans	Sept., 1886	
Louisiana	(State) Baton Rouge	Apr., 1887	1888
Louisiana	(North) Calhoun	May, 1887	
Louisiana	(Rice) Crowley		July 1, 1909
Maine	Orono	Mar., 1885	Oct. 1, 1887
Maryland	College Park		Mar. 9, 1888
Massachusetts	Amherst	1882	Mar. 2, 1888
Michigan	East Lansing		Feb. 26, 1888
Minnesota	(University Farm) St. Paul	Mar. 7, 1885	1888
Mississippi	(Agricultural College)		Jan. 27, 1888
Missouri	(College) Columbia		Jan., 1888
Missouri	(Fruit) Mountain Grove	Feb. 1, 1900	
Montana	Bozeman		Feb. 16, 1893
Nebraska	Lincoln	Dec. 16, 1884	June 14, 1887
Nevada	Reno		Dec., 1887
New Hampshire	Durham		Aug. 4, 1887
New Jersey	(State) New Brunswick	Mar. 10, 1880	
New Jersey	(College) New Brunswick		Apr. 26, 1888
New Mexico	(College of Agriculture) State College		Dec. 14, 1889
New York	(State) Geneva	Mar. 1, 1882	
New York	(Cornell University) Ithaca	1879	Apr. 1, 1888
North Carolina	(College) West Raleigh	Mar. 12, 1877	Mar. 7, 1887
North Carolina	(State) Raleigh	July 1, 1907	
North Dakota	(Agricultural College)		Mar., 1890
Ohio	Wooster	Apr. 25, 1882	Apr. 2, 1888
Oklahoma	Stillwater		1891
Oregon	Corvallis		July, 1888
Pennsylvania	(State College)		June 30, 1887
Pennsylvania	Institute of Animal Nutrition		July 1, 1907
Rhode Island	Kingston		July 30, 1888
South Carolina	(Clemson College)		Jan., 1888
South Dakota	Brookings		Mar. 13, 1887
Tennessee	Knoxville	June 8, 1882	Aug. 4, 1887
Texas	(College Station)		Jan. 25, 1888
Utah	Logan		Apr., 1890
Vermont	Burlington		Feb. 28, 1888
Virginia	(College) Blackburg		Oct. 16, 1888
Virginia	(Truck) Norfolk	Feb., 1907	
Washington	Pullman		1892
West Virginia	Morgantown		1887
Wisconsin	Madison	1883	1887
Wyoming	(State University) Laramie		Mar. 1, 1891

*Not including Alaska, Guam, Hawaii, Philippine Islands and Porto Rico.

APPENDIX B.

COUNTY COMMISSIONERS OF HORTICULTURE AND FARM ADVISERS.

County	Horticultural Commissioners	Farm Advisers
Alameda.....	Fred Seulberger, 418 14th St., Oakland	M. A. W. Lee; O. N. Siebert, assist-
Butte.....	Earl Mills, Oroville.	ant, Hayward.
Calaveras.....	J. B. Luddy, San Andreas.	
Colusa.....	L. R. Boedefeld, Colusa.	Carl Nichols, Martinez.
Contra Costa.....	Frank T. Swett, Martinez.	B. J. Jones, Placerville.
El Dorado.....	J. E. Hassler, Placerville.	Leroy B. Smith, 317 Holland Bldg.,
Fresno.....	Fred P. Rouillard, Fresno.	Fresno; T. A. McOutchan, B. N.
		Davis, assistants.
Glenn.....	H. E. Wahlberg, Willows.	Prof. W. H. Hellesman, Crawford
		Hotel Bldg., Willows; E. W.
Humboldt.....	John F. Benton, Eureka.	Curtis, assistant.
		A. H. Christiansen, 622 3d St.,
Imperial.....	F. W. Waite, El Centro.	Eureka.
Inyo.....	E. M. Nordyke, Bishop.	O. E. Sullivan; Joseph Hertel, assist-
Kern.....	Norman Buhn, Bakersfield.	ant, El Centro.
Kings.....	Fred K. Howard, Hanford.	Myron A. Rice; E. L. Garthwaite,
Lake.....	Fred G. Stokes, Kelseyville.	assistant, Court House, Bakersfield.
Lassen.....	A. H. Taylor, Susanville.	W. Sullivan, Hanford.
Los Angeles.....	William Wood, Hall of Records, Los	
	Angeles	Prof. J. E. Colt, 357 Court House,
		Los Angeles; R. W. Hodgson, F. H.
Madera.....	George Marchbank, Madera.	Scribner, R. E. Nebelung, assistants.
Marin.....	Thos. P. Redmayne, San Rafael.	W. N. Birch, Madera.
Mendocino.....	Claude Van Dyke, Ukiah.	
Merced.....	Arthur E. Beers, Merced.	Charles S. Myszk, Ukiah.
		J. F. Grass, Jr., Chamber of Com-
Modoc.....	Thos. Briles, Davis Creek.	merce, Merced; R. Walker, as-
Monterey.....	J. B. Hickman, Aromas.	sistant.
Napa.....	W. D. Butler, Napa.	T. O. Mayhew, City Hall, Salinas.
		H. J. Baade, Chamber of Commerce,
Nevada.....	D. F. Norton, Grass Valley.	Napa; Frank Wood, assistant.
Orange.....	Earl L. Morris, Santa Ana.	Herman I. Graser, Grass Valley.
Placer.....	C. K. Turner, Auburn.	A. R. Sprague, Santa Ana.
Riverside.....	D. D. Sharp, Riverside.	F. O. Amundsen, East Auburn.
		R. N. Wilson, Telephone Bldg.,
Sacramento.....	Fred Brosius, Court House, Sacra-	Riverside; G. E. Gordon, assistant.
	mento	Carl J. Williams, Court House, Sacra-
San Benito.....	Leonard H. Day, Hollister; G. S.	ramento; E. L. Conant, assistant.
	Wright, Deputy Commissioner.	
San Bernardino.....	John P. Coy, Court House, San Ber-	Herman F. Bahmeier, Chamber of
	nardino	Commerce, San Bernardino.
San Diego.....	H. M. Armitage, Court House, San	H. A. Weinland, Chamber of Com-
	Diego	merce, San Diego; G. W. Kret-
San Francisco.....	Dudley Moulton, Board of Super-	singer, assistant.
	visors, Clerk's Office, San Francisco.	R. D. Robertson, Chamber of Com-
San Joaquin.....	Harry H. Ladd, Court House, Stockton	merce, Stockton; J. W. Adrance,
		Herman Brueck, assistants.
San Luis Obispo.....	C. C. Staunton, San Luis Obispo.	
San Mateo.....	Newton Peck, San Mateo.	H. L. Washburn, Santa Cruz.
Santa Barbara.....	Eugene S. Kellogg, Santa Barbara.	Parker Talbot, Court House, Red-
Santa Clara.....	L. R. Cody, San Jose.	dington.
Santa Cruz.....	Donald Penny, Watsonville.	J. W. Mills, Court House, Fairfield.
Shasta.....	Geo. A. Lamiman, Anderson.	Geo. E. Merrill, Santa Rosa.
Siskiyou.....	W. L. Kleaver, Yreka.	A. A. Jungermann, box 377, Modesto;
Solano.....	G. M. Gates, Vacaville.	William A. Kent, assistant.
Sonoma.....	O. E. Bremner, Santa Rosa.	
Stanislaus.....	A. L. Rutherford, Modesto.	J. E. Stiles, Mission Hall, Yuba City.
Sutter.....	Ross W. Knight, Yuba City; E. S.	C. M. Conner, Auditorium, Visalia.
	Norton, Acting Commissioner.	Prof. E. O. Essig, Ventura.
Tahama.....	G. H. Flournoy, Red Bluff.	N. P. Searls, Court House, Wood-
Tulare.....	Chas. F. Collins, Visalia.	land.
Ventura.....	A. A. Brock, Santa Paula.	William Harrison, Marysville.
Yolo.....	Wm. Gould, Woodland.	
Yuba.....	G. W. Harney, Marysville.	

Assistant Farm Advisers (travelling)—Donald E. Martin, Harry E. Drobish, F. G. Tiffany, room 5, Agricultural Hall, Berkeley.

APPENDIX C.

NATIONAL AND CALIFORNIA AGRICULTURAL ASSOCIATIONS.*

Horses.

American Hackney Horse Society	Hempstead, New York
American Shire Horse Society	Bushnell, Illinois
American Saddle Horse Breeders' Association	Lexington, Kentucky
Percheron Society of America	Stockyards, Chicago, Illinois
Pacific Coast Saddle Horse Breeders' Association	Dr. W. J. Smyth, Secretary
	Union Savings Bank, Oakland, California
Pacific Coast Trotting Horse Breeds' Association	Oakland, California

STATES HAVING STALLION REGISTRATION LAWS.

State	Name and location	Date of organization
California	Stallion Registration Board, Sacramento	Aug. 1, 1911
Colorado	State Board of Stock Inspection Commissioners, Denver	Aug. 5, 1911
Idaho	Stallion Registration Board, Moscow	Mar. 15, 1909
Illinois	Stallion Registration Board, Springfield	Jan. 1, 1910
Iowa	Stallion Registration Board, Des Moines	Mar. 30, 1907
Kansas	State Livestock Registry Board, Manhattan	April 3, 1910
Michigan	Agricultural College, East Lansing	Aug. 1, 1911
Minnesota	Stallion Registration Board, St. Paul	April 25, 1907
Missouri	Missouri Stallion Registration Board, Columbia	Jan. 1, 1918
Montana	Bureau of Agriculture, Labor Industry and Publicity, Helena	Mar. 8, 1909
Nebraska	Stallion Registration Board, Lincoln	July 7, 1911
New Jersey	Stallion Registration Board, New Brunswick	Sept. 1, 1908
New York	New York Stallion Registration Board, Albany	Aug. 1, 1916
North Dakota	Stallion Registration Board, Fargo	Jan. 1, 1910
Oklahoma	Oklahoma State Live Stock Registration Board, Stillwater	Feb. 25, 1915
Oregon	Stallion Registration Board, Corvallis	May 20, 1911
Pennsylvania	Stallion Registration Board, Harrisburg	Jan. 1, 1908
South Dakota	Stallion Registration Board, Brookings	Mar. 9, 1909
Utah	Stallion Registration Board, Logan	May 13, 1907
Washington	Stallion and Jack Registration Office, State College, Pullman	June 8, 1910
Wisconsin	Stallion Registration Board, Madison	Jan. 1, 1908

Cattle.

American National Livestock Association	Denver, Colorado
American Hereford Cattle Breeders' Association	625 Finance Building, Kansas City, Missouri
American Jersey Cattle Club	R. M. Gow, Secretary
	324 West Twenty-third Street, New York, N. Y.
American Polled Jersey Cattle Club	R. F. D. No. 4, Springfield, Ohio
American Guernsey Cattle Club	Wm. H. Caldwell, Secretary
	Peterboro, New Hampshire
American Devon Cattle Club	L. P. Sisson, Secretary
	Charlottesville, Virginia
American Polled Durham Breeders' Association	J. H. Martz, Secretary
	Greenville, Ohio
American Shorthorn Breeders' Association	F. W. Harding, Secretary
	No. 13 Dexter Park Avenue, Union Stockyards, Chicago, Illinois
Holstein-Friesian Association of America	L. F. Houghton, Secretary
	Brattleboro, Vermont
Red Polled Cattle Club of America	H. A. Martin, Secretary
	Gotham, Wisconsin
American Aberdeen-Angus Breeders' Association	817 Exchange Avenue, Chicago, Illinois
American Kerry and Dexter Cattle Club	C. S. Plum, Secretary
	Ohio State University, Columbus, Ohio
Ayrshire Breeders' Association	C. M. Winslow, Secretary
	Brandon, Vermont
Dutch Belted Cattle Association of America	G. G. Gibbs, Secretary
	Marksboro, New Jersey
Brown Swiss Cattle Breeders' Association	Ira Inman, Secretary
	Beloit, Wisconsin
California Cattlemen's Association	320 Sharon Building, San Francisco, California
California Holstein-Friesian Association	Sacramento, California
California Jersey Breeders' Association	Lockeford, California

Sheep.

American Hampshire Sheep Association.....36 Woodland Avenue, Detroit, Michigan
 American Angora Goat Breeders' Association.....Lawrence, Kansas
 American Milk Goat Record Association, J. C. Darst, Secretary.....Dayton, Ohio
 California Woolgrowers' Association, Prof. Robt. F. Miller, Secretary.....
University Farm, Davis, California
 National Association of Wool Manufacturers...50 State Street, Boston, Massachusetts

Swine.

American Berkshire Association.....Springfield, Illinois
 American Hampshire Swine Record Association.....Peoria, Illinois
 American Yorkshire Club.....White Bear Lake, Michigan
 American Poland China Record Association.....Union Stockyards, Chicago, Illinois
 National Poland China Record Association.....Winchester, Indiana
 National Duroc Jersey Record Association.....Peoria, Illinois
 National O. T. C. Chester White Record Association.....Hastings, Nebraska
 California Swine Breeders' Association, R. P. Boyce, Secretary.....
University Farm, Davis, California

Poultry.

American Poultry Association.....St. Louis, Missouri
 Poultry Keepers' Association.....Petaluma, California
 Poultry Producers of Central California.....
612 Underwood Building, San Francisco, California
 Southern California Poultrymen's Association, Jos. Davis, Secretary.....
Los Angeles, California
 Poultry Producers of Southern California.....Los Angeles, California
 Stanislaus Poultry and Pet Stock Association.....Modesto, California
 San Joaquin Poultry Association.....Stockton, California
 Pasadena Poultry, Pigeon and Pet Stock Association.....Pasadena, California

Fruit Associations.

California Fruit Growers' Exchange.....Los Angeles, California
 Citrus Protective League of California.....Los Angeles, California
 California Fruit Exchange.....Sacramento, California
 California Fruit Distributors.....Sacramento, California
 California Associated Raisin Company.....Fresno, California
 California Pear Growers Association, 238 Consular Building, San Francisco, California
 California Prune and Apricot Growers' Association.....San Jose, California
 California Peach Growers' Association.....Fresno, California
 California Fig Growers' Association.....Cory Building, Fresno, California
 California Avocado Association.....Experiment Station, Riverside, California
 The American Date Company.....
206 Wright & Callendar Building, Los Angeles, California
 Coachella Valley Co-operative Date Growers' Syndicate.....Indio, California
 California Associated Olive Growers, Incorporated.....
721 Balboa Building, San Francisco, California
 Los Angeles Olive Growers' Association.....
522 Higgins Building, Los Angeles, California
 American Olive Company.....
Adam Street and Long Beach Avenue, Los Angeles, California
 Olive Products Company.....Oroville, California
 California Ripe Olive Company.....Oroville, California
 Sebastopol Apple Growers' Union.....Sebastopol, California
 Watsonville Apple Distributors.....Watsonville, California
 Imperial Valley Melon Growers' Association.....El Centro, California

Nuts.

California Almond Growers' Exchange, 311 California Street, San Francisco, California
 California Walnut Growers' Association.....
1326 East Seventh Street, Los Angeles, California

Bees and Honey, and Wine.

California State Beekeepers' Association.....
232 West First Street, Los Angeles, California
 California National Honey Producers' Association.....Los Angeles, California
 California Honey Producers' Co-operative Exchange.....Modesto, California
 Northern California Beekeepers' Association.....Fair Oaks, Sacramento, California
 California Wine Association.....216 Pine Street, San Francisco, California
 The American Beet Sugar Company.....625 Market Street, San Francisco, California
 The Lima Bean Growers' Association.....Oxnard, California
 California Castor Bean Association.....Santa Barbara, California
 California Bean Growers' Association.....Stockton, California
 California Tomato Growers' Association, 510 Battery Street, San Francisco, California
 West Coast Potato Association.....Stockton, California
 Celery Growers' Association.....Santa Ana, Orange County, California
 California Vegetable Union.....812 Union Oil Building, Los Angeles, California
 Imperial Valley Long Staple Cotton Growers' Exchange.....El Centro, California
 Pacific Rice Growers' Association.....Fruit Building, Sacramento, California

*This is only a partial list as there are many county and local organizations too numerous to include in this summary.

Miscellaneous.

National Agricultural Society-----Second West Forty-fifth Street, New York, N. Y.
 California Farmers' Institutes-----University of California, Berkeley, California
 California Farmers' Union, Incorporated-----112 Market Street, San Francisco, California
 California State Grange, Joseph Holmes, Master-----Cupertino, California
 California Association of Nurserymen-----237 Franklin Street, Los Angeles, California
 California Irrigation Association-----
 -----Merchants National Bank Building, San Francisco, California
 California Grape Protective Association-----216 Pine Street, San Francisco, California
 San Joaquin County Grape Growers' Protective League-----Lodi, California
 Valley Fruit Growers' Association-----Griffith-McKenzie Building, Fresno, California
 Japanese Agricultural Association-----444 Bush Street, San Francisco, California

Agricultural Newspapers.

Pacific Rural Press (W)-----525 Market Street, San Francisco, California
 California Fruit News (W)-----341 Montgomery Street, San Francisco, California
 California Home and Farmer-----706 Chronicle Building, San Francisco, California
 Orchard and Farm (W)-----Examiner Building, San Francisco, California
 California Cultivator (W)-----115 North Broadway, Los Angeles, California
 Pacific Fruit World (W)-----706 Hollingsworth Building, Los Angeles, California
 Rural World-----237 South Broadway, Los Angeles, California
 Western Empire (M)-----132 North Broadway, Los Angeles, California
 Fig and Olive Journal-----311 East Fourth Street, Los Angeles, California
 Pacific Dairy Review (W)-----78 Clay Street, San Francisco, California
 Breeder and Sportsman-----239 Pacific Building, San Francisco, California
 Pacific Poultry Craft (M)-----223 Central Building, Los Angeles, California
 Pacific Poultry Breeder (M)-----San Jose, California
 California Poultry Journal (M)-----105½ North Spring Street, Los Angeles, California
 Live Stock and Dairy Journal (M)-----Sacramento, California
 Sacramento Valley Monthly-----Sacramento, California

APPENDIX D.

Acts Relating to the Management and Control of the State Agricultural Society.*

- Chapter 60—To provide for the management and control of the State Agricultural Society by the state. Approved April 15, 1880.
- Chapter 307—An act to amend the above act. Approved June 11, 1913.
- Chapter 570—An act to amend the above act. Approved May 29, 1915.

STALLION REGISTRATION BOARD.

- Chapter 677—An act to regulate the public service of stallions and jacks in the state of California. Approved May 1, 1911.
- Chapter 752—An act to amend the above act. Approved June 12, 1915.

STATISTICS.

- Chapter 584—An act to provide for the collection, compilation and publication of agricultural and other industrial statistics for the state of California, and making an appropriation therefor. Approved April 25, 1911.

*The California State Agricultural Society was one of the first to be organized, and ranks as fifth in the United States.
Incorporated May 13, 1854.
State Board of Agriculture appointed March 12, 1863.

CHAPTER 60.

An act to provide for the management and control of the state agricultural society by the state.

[Approved April 15, 1880.]

The people of the State of California, represented in senate and assembly, do enact as follows:

SECTION 1. The state agricultural society is hereby declared to be a state institution.

SEC. 2. Within ten days after the passage of this act, the governor shall appoint twelve resident citizens of the state, who shall, when organized constitute a state board of agriculture, who shall, except as hereinafter provided, hold office for the term of four years, and until their successors are appointed and qualified. Vacancies occurring from any cause in the board shall be filled by appointment of the governor for the unexpired term of the office vacated.

SEC. 3. Within ten days after their appointment, the persons so appointed shall qualify, as required by the constitution, and shall meet at the office of the state agricultural society and organize by the election of one of their number as president of the board and said society, who shall hold said office of president for the term of one year, and until his successor is elected and qualified. The board shall also elect a secretary and treasurer, not of their number, who shall each hold office at the discretion of the board.

SEC. 4. At the same meeting, the members of the board shall, by lot or otherwise, classify themselves into four classes of three members each. The terms of office of the first class shall expire at the end of the first fiscal year; of the second class, of the second year; of the third class, of the third year; of the fourth class, at the end of the full term of four years. The fiscal year shall be from the first of February to the first of February.

SEC. 5. The state board of agriculture shall be charged with the exclusive management and control of the state agricultural society as a state institution; shall have possession and care of its property, and be intrusted with the direction of its entire business and financial affairs. They shall define the duties of the secretary and treasurer, fix their bonds and compensation, and shall have power to make all necessary changes in the constitution and rules of the society, to adapt the same to the provisions of this act, and to the management of the society, its meetings and exhibitions. They shall provide for an annual fair or exhibition by the society of all the industries and industrial products of the state, at the city of Sacramento; *provided*, that in no event shall the state be liable for any premium awarded or debt created by said board of agriculture.

SEC. 6. The board shall have power to appoint all necessary marshals and police to keep order and preserve peace at the annual fairs of the society; and the officers so appointed shall be vested with the same authority for the preservation of order and peace, on the grounds and in the buildings of the society, that executive peace officers are vested with by law.

SEC. 7. Said board shall use all suitable means to collect and disseminate all kinds of information calculated to educate and benefit the industrial classes, develop the resources, and advance the material interests of the state, and shall, on or before the first day of February of each year, report to the governor a full and detailed account of their transactions, statistics, and information gained, and also a full financial statement of all funds received and disbursed. They shall also make such suggestions and recommendations as experience and good policy may dictate for the improvement and advancement of the agricultural and kindred industries.

SEC. 8. The superintendent of state printing shall, each year, print and bind in cloth four thousand volumes of said transactions, and deliver the same to said board of agriculture for distribution and exchange. He shall also do such job printing as said board may require to carry out the provisions of this act.

SEC. 9. The directors or boards of managers of each county and district agricultural society or association, and of county, district, or state horticultural and stock breeding association or society, organized, and acting under the laws of this state, shall report annually, on or before the first day of April, to the state board of agriculture, the name and post-office address of each officer of such society or association; and, on or before the first day of December, shall report to said board of agriculture the transactions of said society, including the premiums offered, the list of stock and articles exhibited, and the premiums paid; the amount of receipts and expenditures for the year, the new industries inaugurated, and any and all facts and statistics showing the development and extent of the industries, products, and resources of the county or district embraced within the management of such society or association; *provided*, that the provisions of this act shall not apply to any board of commissioners or other body organized under the laws of this state, the object of which is to promote vinicultural industries, unless such board or body shall voluntarily request the privilege of making such reports as are called for by this act, in which case such board or body shall enjoy equal privileges as are accorded to other institutions devoted to agriculture.

SEC. 10. To facilitate such reports, the state board of agriculture shall have prepared, and shall furnish such societies with necessary schedules and blanks for such reports; said state board shall include such reports from societies and associations, or so much thereof as they may deem advisable, in their report to the governor.

SEC. 11. When said state board of agriculture shall have been organized and classified as provided herein, the secretary of the board shall report such organization and classification to the governor. He shall also report any vacancy that may occur in said board at any time.

SEC. 12. All laws and parts of laws in conflict with this act are hereby repealed.

SEC. 13. This act shall take effect and be in force from and after its passage.

CHAPTER 307.

An act to amend an act entitled "An act to provide for the management and control of the state agricultural society by the state," approved April 15, 1880.

[Approved June 11, 1913.]

The people of the State of California do enact as follows:

SECTION 1. Section five of an act entitled "An act to provide for the management and control of the state agricultural society by the state," approved April 15, 1880, is hereby amended to read as follows:

Sec. 5. The state board of agriculture shall be charged with the exclusive management and control of the state agricultural society as a state institution; shall have possession and care of its property, and be intrusted with the direction of its entire business and financial affairs. They shall define the duties of the secretary and treasurer, fix their bonds and compensation, and shall have power to make all necessary changes in the constitution and rules of the society; to adapt the same to the provisions of this act, and to the management of the society, its meetings, and exhibitions. They shall provide for an annual fair or exhibition by the society of all the industries and industrial products of the state, at the city of Sacramento; *provided*, that in no event shall the state be liable for any premium awarded or debt created by said board of agriculture; *provided, further*, that the collections and receipts from other sources than state appropriations shall be reported monthly by the secretary to the controller of state and shall be paid into the state treasury. Such receipts shall be credited to the state agricultural society contingent fund, which is hereby created, and shall be for the use of the society.

CHAPTER 570.

An act to amend sections one and five of an act entitled "An act to provide for the management and control of the state agricultural society by the state," approved April 15, 1880, as amended and approved June 11, 1913.

[Approved May 29, 1915.]

The people of the State of California do enact as follows:

SECTION 1. Section one of an act entitled "An act to provide for the management and control of the state agricultural society by the state," approved April 15, 1880, as amended June 11, 1913, is hereby amended to read as follows:

Section 1. The state agricultural society is hereby declared to be a state institution; *provided*, that all rights and privileges which have heretofore accrued to members of said society under its rules, either through payments made or by services rendered, are hereby recognized and continued.

SEC. 2. Section five of said act is hereby amended to read as follows:

Sec. 5. The state board of agriculture shall be charged with the exclusive management and control of the state agricultural society as a state institution; shall have possession and care of its property and be intrusted with the direction of its entire business and financial affairs. It shall define the duties of the secretary and treasurer, fix their bonds and compensation, and shall have power to make all necessary changes in the constitution and rules for the society, to adapt the same to the provisions of this act and to the management of the society, its meetings and exhibitions. It shall provide for an annual fair or exposition by said society of the industries and industrial products of this state and commercial products exported and imported through the ports of this state at the city of Sacramento each year; *provided*, that in any year during which an international exposition conducted in whole or in part under the auspices of the State of California and endorsed by the United States government, is held within the State of California and the state board of agriculture deems it inexpedient to hold a state fair, the funds of the state agricultural society for that year only may be expended in cooperation with the management of said exposition to provide for a proper exploitation of the industries of California at such exposition; *provided, further*, that in no event shall the state be liable for any premium awarded or debt created by the said state board of agriculture; *provided, further*, that the collections and receipts from sources other than state appropriations, shall be reported monthly by the secretary to the controller of state, and shall be paid to the state treasury. Such receipts shall be credited to the state agricultural society contingent fund, which is hereby created, and shall be solely for the use of the society.

CHAPTER 677.

An act to regulate the public service of stallions and jacks in the State of California.

[Approved May 1, 1911.]

The people of the State of California, represented in senate and assembly, do enact as follows:

SECTION 1. Every association, person, firm or corporation standing or offering any stallion or jack for public service in this state shall cause the name, description, and pedigree of such stallion or jack to be enrolled by a stallion registration board hereinafter provided for, and secure a license from said board, as provided in section 3 of this act. All enrollment and verification of pedigree shall be done in the office of the secretary of the California state board of agriculture. All license certificates for stallions or jacks issued under this act shall thereupon be presented to and recorded by the county recorder of the county or counties in which said stallion or jack is used for public service.

SEC. 2. In order to carry out the provisions of this act, there shall be constituted a stallion*registration board, whose duty it shall be to verify and register pedigrees; to pass upon certificates of veterinary

examination; to provide, when necessary, for veterinary inspection; to issue stallion or jack license certificates; to make all necessary rules and regulations; and to perform such other duties as may be necessary to carry out and enforce the provisions of this act. Said board shall hold meetings at the office of the secretary of the California state board of agriculture the first Tuesday and subsequent days of February, May, August, and November of each year, and such other meetings as may be necessary.

Said stallion registration board shall be composed of three members, consisting of the president and the secretary of the California state board of agriculture and the state veterinarian.

SEC. 3. In order to obtain the license certificate herein provided for, the owner of each stallion or jack shall forward an affidavit signed by a licensed veterinarian to the effect that he has personally examined such stallion or jack, and that, to the best of his knowledge and belief, said stallion or jack, is free from hereditary, infectious, contagious, or transmissible disease or unsoundness. The owner of said stallion or jack shall also furnish to the stallion registration board the studbook certificate of registry of the pedigree of the said stallion or jack when said stallion or jack is registered, and all other necessary papers relative to his breeding and ownership. Upon verification of pedigree and certificate of breeding (in case of pure-bred stallions and jacks), and receipt of veterinarian's affidavit, as provided for in this act, a license certificate shall be issued to the owner.

SEC. 4. The presence of any one of the following named diseases shall disqualify a stallion or jack for public service, and the examining or inspecting veterinarian is hereby duly authorized to refuse to give an affidavit of soundness to the owner of such stallions or jacks affected with any one or more of the diseases herein specified in a transmissible or hereditary form, and the examining or inspecting veterinarian shall so report the same to the secretary of the stallion registration board.

Laryngeal hemiplegia (roaring or whistling); pulmonary emphysema (heaves, broken wind); chorea (St. Vitus' dance, crampiness, shivering, stringhalt); bone spavin; ringbone; sidebone; navicular disease; osteoporosis; curb, when accompanied with faulty conformation of hock; glanders, farcy; maladie du coit; urethral gleet; mange; or any contagious or infectious disease, and the said board is hereby authorized to refuse its certificate of enrollment for any stallion or jack affected with any one of the diseases hereinabove mentioned and to revoke the previously issued enrollment certificate of any stallion or jack found on subsequent examination and investigation to be so affected.

SEC. 5. The stallion registration board shall make and keep records of all stallions and jacks enrolled in the State of California; said stallions or jacks to be enrolled as "pure-bred," "cross-bred," "nonstandard bred," "grade," or "mongrel," according as the facts may have been determined.

Upon making the enrollment of said stallion or jack, said stallion registration board shall issue the above said license.

The stallion registration board is authorized, in cases of emergency, to grant temporary license certificates without veterinary examination, upon receipt of an affidavit of the owner to the effect that, to the best

of his knowledge and belief said stallion or jack is free from infectious, contagious, or transmissible disease or unsoundness. Temporary license certificate shall be valid only until veterinary examination can reasonably be made.

SEC. 6. The owner of any stallion or jack used for public service in this state shall post and keep affixed, during the entire breeding season, copies of the license certificate of such stallion or jack, issued under the provisions of this act, in a conspicuous place, both within and upon the outside of the main door leading to every stable or building where the said stallion or jack is used for public service.

Each bill and poster and each newspaper advertisement shall show the enrollment certificate number, and state whether it reads "pure-bred," "grade," "cross-bred," "nonstandard bred" or "mongrel" and it shall be illegal to print or advertise any misleading reference to the breeding of said stallion or jack, his dam or his sire.

SEC. 7. The license certificate issued for a stallion or jack whose sire and dam are of pure breeding, and the pedigree of which is registered in a studbook recognized by the United States department of agriculture, Washington, D. C., an act regulating the importation of breeding animals, approved March 3, 1903, shall be in the following form:

CALIFORNIA STALLION REGISTRATION BOARD.

Certificate of pure-bred stallion or jack No.-----

The pedigree of the stallion or jack (name) -----

Owned by -----

Bred by -----

Described as follows:

Color ----- Breed -----

Foaled in the year -----, has been duly examined, and it is hereby certified that the said stallion or jack is registered as number ----- in ----- studbook, said studbook being recognized and certified to by the secretary of the department of agriculture, Washington, D. C., and is of pure breeding. The above named stallion or jack has been examined by ----- veterinarian, and is reported as free from infectious, contagious or transmissible disease or unsoundness, ----- and is licensed to stand for public service in the State of California.

This license expires on -----, 19-----.

(Signed) -----,

Secretary California Stallion Registration Board.

Dated this -----, 19-----, at Sacramento, Cal.

The license certificate issued for a grade stallion or jack, whose sire or dam is not pure-bred, shall be in the following form:

CALIFORNIA STALLION REGISTRATION BOARD.

Certificate of grade stallion or jack No.-----

The pedigree of the stallion or jack (name) -----

Owned by -----

Bred by -----

Described as follows:

Color -----

Foaled in the year -----, has been duly examined, and it is hereby certified that the said stallion or jack is not of pure breeding, and is, therefore, not eligible for registration in any studbook recognized and certified to by the secretary of the department of agriculture, Washington, D. C. The above named stallion has been examined by -----, veterinarian, and is reported as free from infectious, contagious, or transmissible disease or unsoundness, ----- and is licensed to stand for public service in the State of California.

This license expires on -----, 19-----.

(Signed) -----,

Secretary California Stallion Registration Board.

Dated this -----, 19-----, at Sacramento, Cal.

The license certificate issued for a stallion whose sire and dam are pure-bred, but not of the same breed, shall be in the following form:

CALIFORNIA STALLION REGISTRATION BOARD.

Certificate of cross-bred stallion No. -----

The pedigree of the stallion (name) -----

Owned by -----

Bred by -----

Described as follows:

Color -----

Foaled in the year -----, has been duly examined, and it is found that his sire is registered in the ----- studbook as number -----, volume -----, at page -----, and his dam in the ----- studbook as number -----, volume ----- and page -----.

Such being the case, the said stallion is not eligible for registration in any studbook recognized and certified to by the secretary of the department of agriculture, Washington, D. C. The above named stallion has been examined by -----, veterinarian, and is reported as free from infectious, contagious or transmissible disease or unsoundness, ----- and is licensed to stand for public service in the State of California.

This license expires on -----, 19-----.

(Signed) -----,

Secretary California Stallion Registration Board.

Dated this -----, 19-----, at Sacramento, Cal.

The license certificate issued for a nonstandard bred stallion, shall be in the following form:

CALIFORNIA STALLION REGISTRATION BOARD.

Certificate of nonstandard bred stallion, No. -----

The pedigree of the stallion (name) -----

Owned by -----

Bred by -----

Described as follows:

Color -----

Foaled in the year _____, has been duly examined, and it is hereby certified and found that said stallion is not eligible to registration as standard bred, and for the purpose of this license is not pure bred, although recorded in the nonstandard department of the American trotting register.

The above named stallion has been examined by _____ veterinarian, and is reported as free from infectious, contagious or transmissible disease or unsoundness, _____ and is licensed to stand for public service in the state of California.

This license expires on _____, 19____.

(Signed) _____,

Secretary California Stallion Registration Board.

Dated this _____, 19____, at Sacramento, Cal.

CALIFORNIA STALLION REGISTRATION BOARD.

Certificate of "mongrel" stallion or jack No. _____

The pedigree, as far as known or traced, of the stallion or jack (name) _____

Owned by _____

Bred by _____

Described as follows:

Color _____

Foaled in the year _____, has been duly examined, and it is hereby certified that the said stallion or jack is of mongrel breeding, and is not eligible for registration in any studbook recognized and certified to by the secretary of the department of agriculture, Washington, D. C.

The above named stallion has been examined by _____ veterinarian, and is reported as free from infectious, contagious, or transmissible disease or unsoundness, _____ and is licensed to stand for public service in the State of California.

This license expires on _____, 19____.

(Signed) _____,

Secretary California Stallion Registration Board.

Dated this _____, 19____, at Sacramento, Cal.

SEC. 8. A fee of \$2.50 shall be paid to the secretary of the California stallion registration board for the examination and enrollment of each stallion or jack pedigree, and for issuance of a license certificate in accordance with the breeding of the stallion or jack as above provided, which shall be in force and effect for a period of one year, from its date, and for the purpose of carrying out the provisions of this act. The fee shall be paid to the secretary of the California stallion registration board at the time the application is made for enrollment.

Upon a transfer of the ownership of any stallion or jack enrolled under the provisions of this act, the certificate of enrollment may be transferred to the transferee by the secretary of the California stallion registration board, upon submittal of satisfactory proof of such transfer of ownership, and upon payment of a fee of \$1.00. A fee of \$1.00 shall be paid annually for the renewal of a license certificate.

A fee of \$1.00 shall be paid for a duplicate license certificate, upon proof of the loss or destruction of the original certificate.

SEC. 9. Every stallion or jack for which a license has been issued shall be exempt from further examination, unless from later developments it becomes known, and a complaint is filed, certified to by three men, one of whom shall be licensed veterinarian, that said stallion or jack has some hereditary, contagious, or infectious disease, which was not evident at the time of previous examination. When such complaint is made, and a request for examination is asked, such complaint shall be filed with the secretary of the California stallion registration board, who shall have another examination made, but the owner of the stallion or jack shall have the right to select a veterinarian legally qualified to practice as such in this state, to act with such examining veterinary, and in case these two shall fail to agree upon a verdict or decision these two veterinarians shall appoint a third qualified veterinarian, with the consent and approval of said board and owner, who shall act as referee therein, and the decision of said referee shall be final. If such complaint is found to be correct it shall be so reported to the secretary, who shall revoke the license in force; *provided*, that the owner of any stallion used for public service in this state shall have a lien on all colts sired by said stallion for the service fee for a period of one year from the date of the foaling of said colt, as now provided by law.

SEC. 10. Every association, person, firm or corporation violating any of the provisions of this act, shall be guilty of a misdemeanor, and shall be punished by a fine not exceeding one hundred dollars (\$100) for each offense; or by imprisonment in the county jail not exceeding fifty days, or by both such fine and imprisonment.

SEC. 11. The funds accruing from the above named fees shall be used by the said stallion registration board to defray the expenses of enrollment of pedigrees and issuance of licenses; to provide for the examination of stallions and jacks, when necessary; to publish reports or bulletins containing lists of stallions and jacks examined, which shall be not less than one in each year; to encourage the horse breeding interests in this state; to disseminate information pertaining to horse breeding, and for any other purposes as may be necessary to carry out the purposes and enforce the provisions of this act. Each member of the above committee shall receive his actual expenses incurred while in the performance of any duty imposed under the provisions of this act; the secretary of said board shall receive for his services an amount to be fixed and agreed upon by said board.

It shall be the duty of the said stallion registration board to enforce the provisions of this act, and to make an annual report, including financial statement, to the governor of the state, on September 15th of each year.

SEC. 12. This act shall take effect and be in force on August 1st, 1911.

CHAPTER 752.

An act to amend an act entitled "An act to regulate the public service of stallions and jacks in the State of California," approved May 1, 1911, by amending sections one, two, three, four, six, seven, eight, and nine thereof and by adding a new section thereto to be known and numbered as section eleven and one-half, all relating to the licensing of stallions and jacks, and providing for the reporting of the collection of fees to the state controller and the creation of a fund to be known as the stallion registration board contingent fund.

[Approved June 12, 1915.]

The people of the State of California do enact as follows:

SECTION 1. Section one of an act entitled "An act to regulate the public service of stallions and jacks in the State of California," approved May 1, 1911, is hereby amended to read as follows:

Section 1. Every association, person, firm or corporation standing or offering any stallion or jack for public service in this state shall cause the name, description, and pedigree of such stallion or jack to be enrolled by a stallion registration board hereinafter provided for, and secure a license from said board, as provided in section three of this act. All enrollment and verification of pedigree shall be done in the office of the secretary of the California state board of agriculture.

SEC. 2. Section two of said act is hereby amended to read as follows:

Sec. 2. In order to carry out the provisions of this act, there shall be constituted a stallion registration board, whose duty it shall be to verify and register pedigrees; to pass upon certificates of veterinary examination; to provide, when necessary, for veterinary inspection; to issue stallion or jack license certificates and tags; to make all necessary rules and regulations; and to perform such other duties as may be necessary to carry out and enforce the provisions of this act. Said board shall hold meetings at the office of the secretary of the California state board of agriculture the first Tuesday and subsequent days of February, May, August and November of each year, and such other meetings as may be necessary. Said stallion registration board shall be composed of three members, consisting of the president and secretary of the California state board of agriculture and the state veterinarian.

SEC. 3. Section three of said act is hereby amended to read as follows:

Sec. 3. In order to obtain the license certificate and tag herein provided for, the owner of each stallion or jack shall forward an affidavit on a form which shall be furnished by the stallion registration board and this affidavit shall be made by a veterinarian, legally qualified to practice as such in this state, to the effect that he has personally examined such stallion or jack. If said stallion or jack is free from communicable diseases and is not affected with any of the diseases or unsoundnesses mentioned in section four of this act, a statement to this effect shall be made on said affidavit by the examining veterinarian. If said examining veterinarian after examination finds such stallion or jack affected with any communicable disease or with any of the diseases or unsound-

nesses mentioned in section four of this act, a statement shall be inscribed on such affidavit by said veterinarian specifying the disease or unsoundness so found. The owner of said stallion or jack shall also furnish to the stallion registration board the studbook certificate of registry of the pedigree of said stallion or jack when said stallion or jack is registered, and all other necessary papers relative to his breeding and ownership. Upon verification of pedigree and certificate of breeding (in case of pure-bred stallions and jacks), and receipt of veterinarian's affidavit as provided for in this act, a license certificate shall be issued to the owner; *provided, however*, that no license certificate shall be issued to the owner of any stallion or jack in case said animal is affected with any communicable disease; *and provided, further*, that when any stallion or jack is found affected with any of the diseases or unsoundnesses as mentioned in section four of this act, the license certificate so issued to the owner of said animal shall specify the disease or unsoundness with which said animal is affected.

SEC. 4. Section four of said act is hereby amended to read as follows:

Sec. 4. Any stallion or jack found to be affected with any of the following diseases or unsoundnesses is hereby deemed unsound and likely to transmit such disease or unsoundness to its progeny, and the license certificate issued to the owner of such a stallion or jack shall specify the disease or unsoundness as provided for in section three of this act:

Periodic ophthalmia (moon blindness); cataract, laryngeal hemiplegia (roaring or whistling); pulmonary emphysema (heaves, broken wind); chorea (St. Vitus dance, crampiness, shivering, stringhalt); bone spavin, ringbone, sidebone, navicular disease, osteoporosis; curb, when accompanied with faulty confirmation of hock.

SEC. 5. Section six of said act is hereby amended to read as follows:

Sec. 6. The owner of any stallion or jack used for public service in this state shall post and keep affixed during entire breeding season, a copy of the license certificate of such stallion or jack, issued under the provisions of this act, in a conspicuous place, both within and upon the outside of the main door leading to every stable or building where the said stallion or jack is used for public service, and at all times during the breeding season shall have attached to the harness or bridle of said stallion or jack a tag which shall be issued with the certificate. Each bill and poster and each newspaper advertisement shall show the enrollment certificate number, and state whether it reads "pure-bred," "grade," "cross-bred," "non-standard bred," or "mongrel," and it shall be illegal to print or advertise any misleading reference to the breeding of said stallion or jack, his dam or sire.

SEC. 6. Section seven of said act is hereby amended to read as follows:

Sec. 7. The license certificate issued for a stallion or jack whose sire and dam are of pure breeding, and the pedigree of which is registered in a studbook recognized by said stallion registration board, shall be in the following form:

CALIFORNIA STALLION REGISTRATION BOARD.

Certificate of pure-bred stallion or jack, No. -----

The pedigree of the stallion or jack (name) -----

Owned by -----

Bred by -----

Described as follows:

Color ----- Breed -----

Foaled in the year -----, has been duly examined, and it is hereby certified that the said stallion or jack is registered as number ----- in ----- studbook, said studbook being recognized by the stallion registration board of California, and is of pure breeding. The above named stallion or jack has been examined by -----, veterinarian, and is reported as ----- and is licensed to stand for public service in the State of California.

This license expires on -----, 19-----.

Signed -----

Secretary California stallion registration board.

Dated this -----, 19-----, at Sacramento, Cal.

The license certificate issued for a grade stallion or jack whose sire or dam is not pure-bred shall be in the following form:

CALIFORNIA STALLION REGISTRATION BOARD.

Certificate of grade stallion or jack, No. -----

The pedigree of the stallion or jack (name) -----

Owned by -----

Bred by -----

Described as follows:

Color ----- Foaled in the year -----, has been duly examined, and it is hereby certified that the said stallion or jack is not of pure breeding, and is, therefore, not eligible for registration in any studbook recognized by the stallion registration board of California. The above stallion has been examined by ----- veterinarian, and is reported as ----- and is licensed to stand for public service in the State of California.

This license expires on -----, 19-----.

Signed -----

Secretary California stallion registration board.

Dated this -----, 19-----, at Sacramento, Cal.

The license certificate issued for a stallion whose sire and dam are pure-bred, but not of the same breed, shall be in the following form:

CALIFORNIA STALLION REGISTRATION BOARD.

Certificate of cross-bred stallion No. -----

The pedigree of the stallion (name) -----

Owned by -----

Bred by -----

Described as follows:

Color ----- Foaled in the year -----, has been duly examined, and it is found that his sire is registered in the ----- studbook as number -----, volume -----, at page -----, and his dam in the ----- studbook as No. -----, volume -----, and page -----.

Such being the case, the said stallion is not eligible for registration in any studbook recognized by the stallion registration board of California. The above named stallion has been examined by -----, veterinarian, and is reported as ----- and is licensed to stand for public service in the State of California.

This license expires on -----, 19-----.

Signed -----

Secretary California stallion registration board.

Dated this -----, 19-----, at Sacramento, Cal.

The license certificate issued for a non-standard bred stallion shall be in the following form:

CALIFORNIA STALLION REGISTRATION BOARD.

Certificate of non-standard bred stallion No. -----

The pedigree of the stallion (name) -----

Owned by -----

Bred by -----

Described as follows:

Color ----- Foaled in the year -----, has been duly examined, and it is hereby certified and found that said stallion is not eligible to registration as standard bred, and for the purpose of this license is not pure-bred, although recorded in the non-standard department of the American trotting register.

The above named stallion has been examined by -----, veterinarian, and is reported as ----- and is licensed to stand for public service in the State of California.

This license expires on -----, 19-----.

Signed -----

Secretary California stallion registration board.

Dated this -----, 19-----, at Sacramento, Cal.

The license certificate issued for a "mongrel" stallion or jack shall be in the following form:

CALIFORNIA STALLION REGISTRATION BOARD.

Certificate of "mongrel" or jack No. -----

The pedigree as far as known or traced, of the stallion or jack (name) -----

Owned by -----

Bred by -----

Described as follows:

Color ----- Foaled in the year -----, has been duly examined, and it is hereby certified that the said stallion or jack is of mongrel breeding, and is not eligible for registration in any studbook recognized by the stallion registration board of California.

The above named stallion has been examined by _____
_____, veterinarian, and is reported as _____
_____ and is licensed to stand for public service
in the state of California.

This license expires on _____, 19_____.

Signed _____

Secretary California stallion registration board.

Dated this _____, 19_____, at Sacramento, Cal.

SEC. 7. Section eight of said act is hereby amended to read as follows:

Sec. 8. A fee of two dollars and seventy-five cents shall be paid to the secretary of the California stallion registration board for the examination and enrollment of each stallion or jack pedigree, and for issuance of a license certificate and tag, in accordance with the breeding of the stallion or jack as above provided, which shall be in force and effect for a period of one year from its date, and for the purpose of carrying out the provisions of this act. The fee shall be paid to the secretary of the California registration board at the time the application is made for enrollment. Upon a transfer of the ownership of any stallion or jack enrolled under the provisions of this act, the certificate of enrollment may be transferred to the transferee by the secretary of the California stallion registration board upon submittal of satisfactory proof of such transfer of ownership, and upon payment of a fee of one dollar and twenty-five cents. A fee of one dollar and twenty-five cents shall be paid annually for the renewal of a license certificate and tag. A fee of one dollar and twenty-five cents shall be paid for a duplicate license certificate and tag upon proof of the loss or destruction of the original certificate.

SEC. 8. Section nine of said act is hereby amended to read as follows:

Sec. 9. Whenever at any time the stallion registration board has reason to believe, or complaint is made, that any stallion or jack has been provided with a license certificate under false or erroneous representation, said stallion registration board is hereby authorized and empowered to cause an investigation to be made, and if in the conduct of such investigation it is deemed necessary by said board to examine said stallion or jack, the owner of said animal shall have the right to select a veterinarian, legally qualified to practice as such in this state, to act with a veterinarian of said stallion registration board in examining said animal, and in case these two shall fail to agree on a verdict or decision they shall appoint a third qualified veterinarian, with the consent and approval of said board and owner, which third veterinarian shall act as a referee therein and the decision of said referee shall be final. If as a result of such investigation or examination, or both, it shall have been found that such stallion or jack is not legally entitled to the license certificate as provided for in this act, then said stallion registration board shall revoke the license in force, or provide the owner of said animal with a proper form of license certificate; *provided*, that the owner of any stallion or jack used for public service in this state shall have a lien on all colts sired by said stallion or jack for the service fee for a period of one year from the date of the foaling of said colt, as now provided by law.

SEC. 9. A new section is hereby added to said act to be known and numbered as section eleven and one-half, and to read as follows:

Sec. 11½. The secretary of the stallion registration board, at least as often as once each month, and oftener if required so to do, shall report to the state controller the total amount of fees collected, and at the same time he shall pay into the state treasury the entire amount of such receipts. All such receipts shall be credited to the stallion registration board contingent fund, which fund is hereby created, and shall be held subject to the uses of the board as defined in this act.

CHAPTER 584.

An act to provide for the collection, compilation and publication of agricultural and other industrial statistics for the State of California, and making an appropriation therefor.

[Approved April 25, 1911.]

The people of the State of California, represented in senate and assembly, do enact as follows:

SECTION 1. The board of directors of the state agricultural society are authorized, and it is hereby made their duty, to collect, compile and publish annually, on or before the 31st day of January in each year, statistics showing the yield of agricultural and other farm and industrial products of the State of California for each preceding year, and shall, as nearly as may be practicable, ascertain and publish each year the number of acres of land within the state that are under irrigation, and the number, location and extent of any new irrigation enterprises, exclusive of individual pumping plants, that may have been started within the state during the preceding year.

SEC. 2. For the purpose of carrying out the provisions of this act, the sum of five thousand (\$5,000.00) dollars per annum is hereby appropriated out of any money in the state treasury not otherwise appropriated, and the controller is hereby authorized to draw his warrant from time to time up to the amount of said appropriation in favor of the board of directors of the state agricultural society, and the state treasurer is hereby authorized and directed to pay the same.

SUPPLEMENT

SUMMARY OF THE RESOURCES

OF THE

STATE OF CALIFORNIA

BY COUNTIES

The brief description of each county which follows, has been greatly condensed in order to keep it within the space available.

County statistics were first obtained under an act passed in 1905, under which county statisticians were appointed, but the result was a failure, as many counties omitted to supply the figures required, and therefore no complete statistics for the state as a whole could be published. In 1910 eleven counties failed to make any report, and in other years the number was even greater.

In 1911 county statisticians were abolished, and the present system established, under which the cost of gathering statistics was reduced from about \$50,000 per annum (paid by the counties) to \$5,000, the latter sum, however, is quite inadequate to give entirely satisfactory results, or to make the report as complete as it could be made with a comparatively moderate increase in the expenditure.

The size of farms, and the figures relating to crops, fruit trees, by counties are those given in the last census. Later statistics brought down to 1917 are given in the body of the Report under their respective headings.

Some correspondents consider that all the details contained in the census reports should be revised annually, but they do not realize the magnitude of the undertaking, or the enormous labor and expense it would entail; and that without much real benefit, for as a rule the totals do not vary greatly in a single year. The pay of the enumerators alone in this state, at the last census, amounted to \$151,750.

The source of the statistics contained in this report are the most trustworthy that can be obtained, and the number of farm animals, farm crops, fruits, and all other products, are brought down to date, and when estimated, the figures are strictly conservative.

NOTE.—Statistics regarding farms, farm animals and farm crops by counties, are only collected by the U. S. Census Bureau every ten years, as it is a very large and costly undertaking.

SUMMARY OF THE WEATHER IN 1917.

The year 1917 was relatively cold and dry in California. For the state as a whole it was the coldest year since 1912, and the driest year since 1898. The first five months of the year were abnormally cold, while the remainder of the year, with the exception of August, was abnormally warm. In January, March and May the mean temperature of the state as a whole was the lowest ever recorded for these respective months, while in October and December the mean tempera-

ture was the highest on record. Extreme temperatures ranged from 125°, which occurred at Greenland Ranch, Inyo County, on July 12, to —33° which was recorded at Bridgeport, Mono County, on January 17, a range for the state of 158°. The average precipitation for the state was 16.48 inches, or 38 per cent below the normal. But 1.00 inch, or 6 per cent of the total annual precipitation, fell during the dry half-year, May to October, inclusive. All months with the exception of February, April and July were abnormally dry. October was the driest month of that name in the 21 years during which state-wide records have been kept. During this extraordinary month no rain fell at 182 stations, while at 39 others only a trace was received. Heavy snow fell in the mountains during the spring months, and as a result there was an ample supply of water for irrigation and power purposes during the summer. But little snowfall occurred during the autumn months, and at the close of the year the amount on the ground was far below the normal. Killing frosts were unusually frequent during the spring months, while few occurred during the autumn. Hot waves accompanied by northerly, desiccating winds, were frequent during the summer half-year, and that of June 13-20 was the most destructive which has ever occurred in California.

Agriculturally, the weather of the year was partly favorable, partly unfavorable. The principal unfavorable features were the extreme cold of the spring months, the unprecedented hot spell in June and the prolonged drought of the autumn months. The favorable features were the abundant snowfall in the mountains during the early spring months, the infrequent occurrence of destructive winds, the clear, dry weather of the harvest season, and the absence of frosts during the autumn and early winter. As there was an ample supply of irrigation water throughout the summer, agriculture prospered in spite of the deficient precipitation.

As a result, the yield of agricultural crops was about 20 per cent greater in 1917 than that of any preceding year in the history of the state. The principal crops which showed a considerably larger yield during 1917 than that of the preceding year were wheat, potatoes, rice, cotton, beans, peaches and onions. On the other hand, the yield of oranges, lemons, walnuts, and hops was decidedly lower than that of 1916. As a whole, the fruit crop was large, but owing to the June hot spell, following an abnormally cold spring, quality suffered somewhat, and the high standard of former years was not maintained with all fruits.

TABLE LII.

Temperature, Rainfall, and Snowfall in Each County in 1917.

(Compiled from the Report of the United States Weather Bureau, San Francisco.)

Counties	County seat or observation station	Elevation, feet.	Temperature		Rainfall, inches.	Snowfall, inches (unmelted)
			Highest	Lowest		
Alameda	Oakland	36	95	30	11.16	0
Alpine	Tamarack*	8,000	82	-16	27.82	259.0
Amador	Electra*	725	106	20	18.75	0
Butte	Oroville (near)	250	109	21	17.31	0
Calaveras	Mokelumne Hill*	1,550	104	19	15.22	7.0
Colusa	Colusa	60	109	24	7.53	0
Contra Costa	Antioch*	46	107	30	5.46	0
Del Norte	Crescent City	125	93	26	69.60	T
El Dorado	Placerville	1,875	105	18	20.58	15.0
Fresno	Fresno	293	109	25	3.91	T
Glenn	Willows	136	112	25	8.82	0
Humboldt	Eureka	64	82	27	28.73	0
Imperial	Brawley*	-105	118	30	1.84	0
Inyo	Independence	3,907	102	-1	2.11	6.0
Kern	Bakersfield	404	110	25	3.02	0
Kings	Hanford	249	110	20	4.43	0
Lake	Sulphur Banks*	1,350	108	23	11.83	T
Lassen	Susanville	4,175	102	17	9.82	T
Los Angeles	Los Angeles	293	105	38	8.45	0
Madera	Storey*	296	107	24	4.99	0
Marin	Point Reyes*	490	90	32	8.34	0
Mariposa	Yosemite*	3,960	96	0	18.93	91.5
Mendocino	Ukiah	620	106	16	25.29	0
Merced	Merced	173	108	21	5.33	0
Modoc	Alturas	4,400	104	-32	11.33	67.2
Mono	Bridgeport	6,500	85	-33	4.99	39.6
Monterey	Salinas	40	97	23	5.17	0
Napa	Napa	20	107	23	13.64	0
Nevada	Nevada City	2,850	99	12	25.71	32.5
Orange	Santa Ana	133	112	32	5.41	0
Placer	Auburn	1,360	105	21	24.33	2.3
Plumas	Quincy	3,400	99	-12	25.72	55.0
Riverside	Riverside	851	118	28	5.46	T
Sacramento	Sacramento	71	107	26	8.92	0
San Benito	Hollister	284	103	22	9.17	0
San Bernardino	San Bernardino	1,054	116	26	8.37	0
San Diego	San Diego	87	92	39	8.04	T
San Francisco	San Francisco	207	96	34	9.00	0
San Joaquin	Stockton (S. H.)	23	105	22	7.01	0
San Luis Obispo	San Luis Obispo	201	110	30	10.34	0
San Mateo	Redwood City					
Santa Barbara	Santa Barbara	130	115	28	11.79	0
Santa Clara	San Jose	95	102	22	8.21	0
Santa Cruz	Santa Cruz	20	101	24	12.37	0
Shasta	Redding	552	111	26	22.95	25.0
Sierra	Downieville	3,150	99	11	46.40	76.0
Siskiyou	Yreka	2,625	105	-1	12.06	25.5
Solano	Vacaville*	175				
Sonoma	Santa Rosa	181	111	23	15.49	0
Stanislaus	Newman*	91	106	18	5.10	0
Sutter	Yuba City	57				
Tehama	Red Bluff	307	110	24	14.16	0
Trinity	Weaverville	2,162	107	5	24.82	24.0
Tulare	Visalia	334	106	16	5.19	T
Tuolumne	Lake Eleanor*	4,700	96	-4	27.43	124.6
Ventura	Ojai Valley*	900	119	23	11.04	0
Yolo	Davis*	51	111	25	9.50	0
Yuba	Marysville	67	108	24	10.89	0

*Observation stations.

Where there is no observation station at the county seat some other station is given. There is no observation station in San Mateo, Solano or Sutter counties. In the last named the figures for Yuba may be accepted as correct, as Marysville is on the opposite side of the river.

ALAMEDA COUNTY.

Date of creation, March 25, 1853.

	1880	1900	1910	1916 (estimated)
Land area, 732 square miles.	Population.. 93,864	130,197	246,131	-----
County seat, Oakland.	Population.. 48,682	66,960	150,174	198,604
Population per square mile, 336.2.				

	Highest	Lowest	Inches	Inches
Elevation, 36 feet.	1916: Temperature... 91	30	Rainfall... 30.69	Snow... T
	1917: Temperature... 95	30	Rainfall... 11.16	Snow... 0

Alameda County fronts on the bay of San Francisco for a distance of 38 miles, with an average width of 25 miles, extending to and beyond the summit of the Contra Costa hills, comprising numerous beautiful valleys, besides the broad Alameda Valley, which last is bounded by the waters of the bay on the one side and the Contra Costa hills on the other, and is one of the richest and most fertile valleys in the state. The principal stream is Alameda Creek. There are other creeks crossing the county and emptying into the bay, two of which furnish water for the city of Oakland. The country around Hayward is one of the great fruit-raising regions, many millions of pounds being shipped annually.

The soils immediately along the bay in Alameda County and the marshes formed by the overflow are heavy, but very fertile when reclaimed. Then comes a broad belt of rich, clay loams that is crossed by deposits of alluvium made by shifting channels of streams running down from the Coast Range. In the Niles region are lighter loams. About Livermore are uplands, bench, and valley lands. The Pleasanton section consists of agricultural and grazing lands. The soil is a very rich sediment, producing hay, grain, potatoes, alfalfa, of which there is 5,000 acres, and beets in abundance. At Alvarado the surrounding country is a fine farming and fruit region, and gardening and dairying are largely carried on.

Alameda County was among the first to begin the planting of orchards and vineyards. The county is divisible into three sections—the cherry district, containing about 757 acres, the apricot district of about 5,000 acres, and the vineyard district.

Alameda is *par excellence* a vegetable-producing county, since the profit in peas, potatoes, rhubarb, asparagus, and several other vegetables is large. About 4,000 acres in this county are planted in tomatoes, which prove to be a most profitable crop. There is also 4,183 acres in sugar beets.

The growing of peas for canning has assumed importance. The output of the San Leandro cannery, located in this county, has reached as high as 1,200 cases per day, and 3½ tons of peas have been grown upon a single acre.

The average annual output of salt recovered from San Francisco Bay, in Alameda County, is very large, including both coarse and fine salt.

ALAMEDA COUNTY SUMMARY—Continued.

Principal Crops—Continued.			
Special crops—		Nuts—	Number bearing trees
Potatoes, acres	1,655	Almonds	21,100
Sweet potatoes, acres	2	Pecans	5
All other vegetables, acres	7,459	Walnuts	3,726
Sugar beets, acres	2,516	Total	25,250
		Irrigation.	
Orchard fruits—		Number of farms irrigated in 1909...	50
Apples	26,045	Acres irrigated in 1909	1,859
Apricots	270,461	Acres enterprise were capable of irrigating in 1910	1,872
Cherries	89,284	Acres included in projects	2,005
Peaches and nectarines	12,555	Main ditches, number	49
Pears	70,382	Length, miles	21
Prunes and plums	157,981	Pumped wells, number	56
Total	627,824	Cost of irrigation enterprises up to July 1, 1910	\$57,156
		Average cost per acre irrigation enterprises were capable of irrigating in 1910	20.5
Tropical fruits—		Mineral Production in 1916.	
Figs	482	Substance	Amount Value
Lemons	660	Chromite, tons	612 \$7,344
Oranges	3,782	Brick, M	23,551 315,941
Pomelos	4	Clay, tons	4,060 2,750
Olives	10,963	Manganese, tons	562 9,005
Total	15,900	Pyrite, tons	16,364 65,110
Grapevines—		Salt, tons	111,206 263,773
Number in bearing	2,390,969	Stone, miscellaneous	403,587
Small fruits—		Other minerals*	26,657
Strawberries, acres	18	Total	\$1,004,167
Blackberries and dewberries, acres	12		
All others, acres	371		
Total	401		

*Includes limestone, magnesium chloride and magnesite.

ALPINE COUNTY.

Date of creation, March 16, 1864; reorganized in 1900.

Land area, 776 square miles.

County seat, Markleeville. Township No. 1. Population..... 309

Population per square mile, 0.4.

Tamarack (Station):	Highest	Lowest	Inches	Inches
Elevation, 8,000 feet. 1916: Temperature....	81	22	Rainfall....60.27	Snow.....538.0
1917: Temperature....	82	16	Rainfall....27.82	Snow.....259.0

Alpine County is one of the counties on the eastern border, and out of the way, as far as her means of communication with the other counties of the state is concerned, there being no public road maintained to the border, thereby rendering it necessary to turn to the state of Nevada for a route to reach the capital at Sacramento, or any other part of the state. All transportation is by wagon or mule back, and this condition militates against the development of the county's many natural resources, as intending investors or purchasers are not afforded a convenient route of reaching the county.

The resources of Alpine County are great, especially in mineral, timber, and water power, the latter offering a field of immediate development to enterprising capital.

ALPINE COUNTY SUMMARY.

(Census 1910.)

Number of Farms Classified by Size.		Domestic Animals on Farms and Ranges.	
20 to 49 acres.....	1	Cattle—	
50 to 99 acres.....	3	Dairy cows.....	759
100 to 174 acres.....	4	Other cows.....	661
175 to 259 acres.....	9	Yearling heifers.....	485
260 to 499 acres.....	14	Calves.....	428
500 to 999 acres.....	3	Yearling steers and bulls.....	400
1,000 acres and over.....	8	Other steers and bulls.....	23
Total.....	42	Total.....	2,754
Total in 1900.....	37	Value.....	\$58,619
Land and Farm Areas.		Horses—	
Approximate land, acres.....	496,640	Mature horses.....	376
Land in farms in 1910.....	32,001	Yearling colts.....	38
Land in farms in 1900.....	15,681	Spring colts.....	12
Improved land in farms in 1910.....	7,579	Total.....	426
Improved land in farms in 1900.....	4,391	Value.....	\$36,325
Woodland in farms.....	7,567		
Other unimproved land.....	16,828	Mules—	
		Mature mules.....	18
		Value.....	\$1,420
Value of All Farm Property.		Asses and burros—	
Total value in 1910.....	\$811,442	Number.....	14
Total value in 1900.....	\$24,441	Value.....	\$200
Per cent increase, 1900-1910.....	150.1		
Land in 1910.....	530,968	Swine—	
Land in 1900.....	198,105	Mature hogs.....	309
Buildings in 1910.....	88,475	Spring pigs.....	208
Buildings in 1900.....	45,400	Total.....	517
Implements and machinery in 1910.....	30,405	Value.....	\$2,515
Implements and machinery in 1900.....	10,810		
Domestic animals, poultry and bees			
in 1910.....	161,594		
Domestic animals, poultry and bees			
in 1900.....	70,131		

ALPINE COUNTY SUMMARY—Continued.

Domestic Animals on Farms and Ranges—Continued.			Wool—	
Sheep—			Wool, fleeces shorn.....	6,790
Rams, ewes and wethers.....	9,832		Value wool and mohair produced..	\$9,561
Spring lambs	6,908			
Total	16,640		Special crops—	
Value	\$61,200		Potatoes, acres	22
			All other vegetables, acres.....	14
Goats—				
Number	10		Orchard fruits—	Number bearing trees
Value	\$44		Apples	1,140
Total value all domestic animals	\$160,828		Apricots	7
Poultry and bees—			Cherries	68
Poultry of all kinds.....	2,159		Peaches and nectarines.....	28
Value	\$1,139		Pears	79
Colonies of bees.....	49		Prunes and plums.....	214
Value	\$132		Total	1,531
Principal Crops.			Grapevines—	
	Acres	Bushels	Number in bearing.....	9,000
Oats	135	7,274		
Wheat	618	19,464	Tropical fruits—	Number bearing trees
Barley	38	1,480	Olives	4
Dry edible beans.....		8		
Potatoes	22	2,944	Nuts—	
Hay and forage—	Acres	Tons	Almonds	12
Timothy alone	206	315		
Timothy and clover mixed..	351	567	Irrigation.	
Clover alone	10	30	Number of farms irrigated in 1909...	32
Alfalfa	1,081	2,573	Acres irrigated in 1909.....	3,349
Other tame or cultivated			Acresage enterprises were capable of	
grasses	697	699	irrigating in 1910.....	3,390
Wild, salt, or prairie grasses	1,116	1,309	Acresage included in projects.....	3,435
Grains cut green.....	355	312	Main ditches, number.....	25
All other hay and forage....	30	20	Length, miles	34
Totals	3,846	5,515	Laterals, number	3
Poultry products—			Length, miles	1
Poultry raised, number.....	2,547		Cost of irrigation enterprises up to	
Eggs produced, dozen.....	8,904		July 1, 1910.....	\$7,463
Value poultry and eggs produced..	\$3,618		Average cost per acre irrigation	
			enterprises were capable of irrigat-	
Honey and wax—			ing in 1910.....	2.20
Honey produced, pounds.....	220		Mineral Production in 1916.	
Value of honey and wax produced	\$23		Number of mineral springs.....	1

Alpine has usually shown a small production of gold and silver, but dropped out of the list of producing counties in 1914.

The mineral resources of this section are varied and the country has not yet been thoroughly prospected. Barium, copper, gold, gypsum, lead, limestone, pyrite, rose quartz, silver, tourmaline, and zinc have been found here to some extent.

AMADOR COUNTY.

Date of creation, May 11, 1854.

	1890	1900	1910	1915 (estimated)
Land area, 601 square miles.	Population... 10,320	11,116	9,086	-----
County seat, Jackson City.	Population... -----	-----	2,035	2,500
Population per square mile, 15.1.				

Electra (Station):	Highest	Lowest	Inches	Inches
Elevation, 725 feet.	1916: Temperature...103	28	Rainfall...38.63	Snow... 2
	1917: Temperature...106	20	Rainfall...18.75	Snow... 0

Amador adjoins El Dorado County on the south, Alpine on the west. Calaveras on the north and Sacramento and San Joaquin counties on the east. It is inland and occupies the east central portion of the state. It has no navigable rivers. The Cosumnes forms a part of its northern boundary and the Mokelumne forms its entire southern boundary. Both of the rivers are tributaries of the Sacramento. Varying, in main, in altitude from 30 feet to 1,500 feet, and having a most productive soil, and the great portion of the county being a rolling, or foothill region, it is adapted to the cultivation of any kind of a farm, or horticultural or of viticultural product.

Grain and hay are cultivated to a considerable extent. In many parts of the western portion of the county a great variety of vegetables is grown throughout the year. Yielding, as the county does, an abundance of the best natural grasses, it offers inducements to stockmen.

Distinctively, the county is a region of mineral deposits. The one resource, however, that is paramount, is gold, which makes up over 96 per cent of the entire total of minerals.

Mountain lakes and valleys and river canyons furnish abundant opportunity for those needing recreation, or for those that enjoy hunting and fishing. Mineral springs, having medicinal properties that are prescribed in certain cases, are found in different parts of the county.

AMADOR COUNTY SUMMARY.

(Census 1910.)

Number of Farms Classified by Size.		Value of All Farm Property.	
Under 3 acres	2	Total value in 1910.....	\$4,830,809
3 to 9 acres	13	Total value in 1900.....	3,518,850
10 to 19 acres.....	19	Per cent increase 1900-1910.....	45.3
20 to 49 acres.....	41	Land in 1910.....	3,252,806
50 to 99 acres.....	52	Land in 1900.....	2,185,150
100 to 174 acres.....	145	Buildings in 1910.....	589,925
175 to 259 acres.....	64	Buildings in 1900.....	495,630
260 to 499 acres.....	105	Implements and machinery in 1910..	141,379
500 to 999 acres.....	58	Implements and machinery in 1900..	127,180
1,000 acres and over.....	38	Domestic animals, poultry and bees in 1910	836,610
Total	587	Domestic animals, poultry and bees in 1900	510,880
Total in 1900.....	580	Domestic Animals on Farms and Ranges.	
Land and Farm Areas.		Cattle—	
Approximate land, acres.....	384,640	Dairy cows	2,747
Land in farms in 1910.....	291,730	Other cows	7,985
Land in farms in 1900.....	214,024	Yearling heifers	2,175
Improved land in farms in 1910.....	45,969	Calves	3,444
Improved land in farms in 1900.....	45,936	Yearling steers and bulls.....	1,970
Woodland in farms.....	114,960	Other steers and bulls.....	3,945
Other unimproved land.....	129,801	Total	22,206
		Value	\$506,380

AMADOR COUNTY SUMMARY—Continued.

Domestic Animals on Farms and Ranges—Continued.							
Horses—				Wool—			
Mature horses	2,291			Wool, fleeces shorn.....		7,253	
Yearling colts	218			Mohair and goat hair, fleeces shorn		449	
Spring colts	176			Value wool and mohair produced...		\$5,882	
Total	2,685			Special crops—			
Value	\$233,128			Potatoes, acres		125	
Mules—				Sweet potatoes, acres.....		1	
Mature mules	212			All other vegetables, acres.....		200	
Yearling colts	10			Sugar beets, acres.....		315	
Spring colts	17			Orchard fruits—			
Total	239						Number
Value	\$27,590						bearing trees
Asses and burros—				Apples		8,592	
Number	23			Apricots		1,197	
Value	\$456			Cherries		1,143	
Swine—				Peaches and nectarines.....		16,349	
Mature hogs	3,623			Pears		5,112	
Spring pigs	1,673			Prunes and plums.....		10,665	
Total	5,296			Total		43,332	
Value	\$32,647			Tropical fruits—			
Sheep—				Figs		347	
Rams, ewes, and wethers.....	3,919			Lemons		8	
Spring lambs	2,726			Oranges		151	
Total	6,645			Olives		274	
Value	\$30,023			Total		780	
Goats—				Grapevines—			
Number	1,597			Number in bearing.....		314,604	
Value	\$3,673			Small fruits—			
Total value all domestic animals	\$923,309			Strawberries, acres		6	
Poultry and bees—				Blackberries and dewberries, acres		13	
Poultry of all kinds	23,630			All others		10	
Value	\$12,380			Total		29	
Colonies of bees.....	170			Nuts—			
Value	\$331						Number
Principal Crops.							bearing trees
		Acres	Bushels	Almonds		628	
Corn	301	12,526		Pecans		1	
Oats	1,354	30,813		Walnuts		185	
Wheat	298	5,169		Total		830	
Barley	1,513	29,071		Irrigation.			
Dry edible beans.....	3	31		Number of farms irrigated in 1909..		73	
Potatoes	125	14,054		Acres irrigated in 1909.....		826	
Hay and forage—		Acres	Tons	Acres enterprises were capable of			
Timothy alone	6	6		irrigating in 1910.....		3,973	
Timothy and clover mixed	29	29		Acres included in projects.....		4,139	
Clover alone	33	33		Main ditches, number.....		55	
Alfalfa	1,724	4,778		Length, miles		185	
Other tame and cultivated				Laterals, number		12	
grasses	998	998		Length, miles		56	
Wild, salt, or prairie grasses	3,599	3,471		Cost of irrigation enterprises up to			
Grains cut green.....	8,090	8,651		July 1, 1910.....		\$265,006	
Totals	14,449	17,961		Average cost per acre irrigation			
Poultry products—				enterprises were capable of irrigat-			
Poultry raised, number.....	23,630			ing in 1910.....		66.85	
Eggs produced, dozen.....	142,824			Mineral Production in 1916.			
Value poultry and eggs produced...	\$49,621						
Honey and wax—				Substance	Amount	Value	
Honey produced, pounds.....	2,402			Chromite, tons	300	\$3,700	
Wax produced, pounds.....	100			Clay, tons	29,246	31,106	
Value of honey and wax produced	\$320			Copper, pounds	12,349	3,038	
				Gold		3,660,550	
				Silica, tons	4,341	12,302	
				Silver		18,705	
				Soapstone and talc, tons.....	495	2,475	
				Stone, miscellaneous		1,300	
				Other minerals*		77,752	
				Total		\$3,811,428	

*Includes brick, coal, lime, manganese and sandstone.

BUTTE COUNTY.

Date of creation, February 18, 1850.

	1890	1900	1910	1915 (estimated)
Land area, 1,722 square miles.	Population... 17,939	17,117	27,301	-----
County seat, Oroville.	Population... -----	-----	3,859	3,300
Population per square mile, 15.9.				

	Highest	Lowest	Inches	Inches
Elevation, 250 feet.	1916: Temperature... 108	26	Rainfall... 31.92	Snow... 4.5
	1917: Temperature... 109	21	Rainfall... 17.31	Snow... 0

Butte County is situated in the northern and eastern Sacramento Valley, and embodies within its confines both mountain, foothill, and valley land. Its climate is most diverse, and in its confines are grown all the products to be found in the temperate and semi-tropical zones. In the higher altitudes, apples thrive, while in the lowest stretches of the rolling foothills, oranges and olives reach perfection. On the broad plains great rice fields are now being planted, and the industry promises to rival that of alfalfa and dairy farming and the more extensive grain farming that has hitherto prevailed. Deciduous fruits of every kind are grown. Large olive pickling works are located in Oroville. The olive crop in the northern part of the state for 1914 was estimated to amount to about 10,000 tons. There are also a number of orange packing houses in the county.

The county is exceptionally well watered. Through it runs the Feather River, with a large number of tributary streams. On one boundary is the great Sacramento River. As a result of the abundance of water, increased attention is being given to irrigation. The Butte County canal covers thousands of acres around Gridley, where the utmost prosperity prevails.

Butte County is also the third largest gold-producing county of the state. The chief gold-dredging field lies around Oroville.

The county was the first to grow rice on a commercial scale, at Biggs and Gridley, and it is now the largest rice-growing county in the state.

BUTTE COUNTY SUMMARY.

(Census 1910.)

Number of Farms Classified by Size.		Value of All Farm Property.	
Under 3 acres	2	Total value in 1910.....	\$24,786,440
3 to 9 acres	116	Total value in 1900.....	15,535,404
10 to 19 acres	186	Per cent increase, 1900-1910.....	55.0
20 to 49 acres	321	Land in 1910.....	19,404,863
50 to 99 acres	143	Land in 1900.....	12,460,539
100 to 174 acres.....	220	Buildings in 1910.....	2,261,132
175 to 259 acres.....	127	Buildings in 1900.....	1,434,570
260 to 499 acres.....	171	Implements and machinery in 1910.....	532,620
500 to 999 acres.....	116	Implements and machinery in 1900.....	439,390
1,000 acres and over.....	98	Domestic animals, poultry, and bees	
		in 1910	1,868,125
Total	1,500	Domestic animals, poultry, and bees	
Total in 1900.....	1,179	in 1900	1,300,614

Land and Farm Areas.		Domestic Animals on Farms and Ranges.	
Approximate land, acres.....	1,102,080	Cattle —	
Land in farms in 1910.....	490,777	Dairy cows	4,713
Land in farms in 1900.....	677,080	Other cows	3,359
Improved land in farms in 1910.....	247,097	Yearling heifers	2,005
Improved land in farms in 1900.....	302,029	Calves	3,772
Woodland in farms.....	119,126	Yearling steers and bulls.....	2,109
Other unimproved land.....	124,564	Other steers and bulls.....	4,060
		Total	26,524
		Value	\$673,908

BUTTE COUNTY SUMMARY—Continued.

Domestic Animals on Farms and Ranges—Continued.		
Horses—		
Mature horses	6,078	
Yearling colts	645	
Spring colts	402	
Total	7,655	
Value	\$985,441	
Mules—		
Mature mules	1,719	
Yearling colts	151	
Spring colts	91	
Total	1,961	
Value	\$225,465	
Asses and burros—		
Number	18	
Value	\$2,655	
Swine—		
Mature hogs	9,317	
Spring pigs	5,016	
Total	14,333	
Value	\$63,927	
Sheep—		
Rams, ewes, and wethers	29,137	
Spring lambs	15,940	
Total	45,077	
Value	\$138,092	
Goats—		
Number	3,215	
Value	\$8,356	
Total value all domestic animals	\$1,817,904	

Wool—	
Wool, fleeces shorn	38,261
Mohair and goat hair, fleeces shorn	1,749
Value wool and mohair produced	\$33,991
Special crops—	
Potatoes, acres	171
Sweet potatoes, acres	21
All other vegetables, acres	513
Sugar beets, acres	711
Orchard fruits—	
	Number bearing trees
Apples	84,425
Apricots	9,900
Cherries	4,317
Peaches and nectarines	255,047
Pears	22,159
Prunes and plums	104,474
Total	452,302
Tropical fruits—	
	Number bearing trees
Figs	9,518
Lemons	2,223
Oranges	147,412
Pomeelos	122
Olives	73,453
Total	235,442
Grapevines—	
Number in bearing	258,742
Small fruits—	
Strawberries, acres	48
Blackberries and dewberries, acres	57
All others, acres	43
Total	148

Nuts—	
	Number bearing trees
Almonds	84,009
Pecans	158
Walnuts	1,063
Total	85,445

Irrigation.	
Number of farms irrigated in 1909	556
Acres irrigated in 1909	23,754
Acres enterprises were capable of irrigating in 1910	115,075
Acres included in projects	233,500
Main ditches, number	132
Length, miles	270
Laterals, number	145
Length, miles	170
Pumped wells, number	46
Cost of irrigation enterprises up to July 1, 1910	\$1,231,894
Average cost per acre irrigation enterprises were capable of irrigating in 1910	10.71

Mineral Production in 1916.		
Substance	Amount	Value
Chromite, tons	1,451	\$13,940
Gems		357
Gold		1,257,231
Mineral water, gals.	3,150	1,125
Platinum, ounces	76	3,473
Silver		3,334
Stone, miscellaneous		67,892
Other minerals		9,576
Total		\$1,356,925

Principal Crops.

	Acres	Bushels
Corn	359	14,856
Oats	1,432	54,685
Wheat	20,894	245,743
Barley	17,705	326,447
Kafir corn and milo maize	409	9,529
Dry edible beans	27	150
Potatoes	171	17,201
Hay and forage—		
	Acres	Tons
Timothy alone	226	162
Timothy and clover mixed	157	271
Clover alone	81	95
Alfalfa	9,351	38,196
Other tame and cultivated grasses	1,994	2,360
Wild, salt, or prairie grasses	1,253	1,177
Grains cut green	42,726	49,243
All other hay and forage	174	319
Totals	55,982	91,832
Poultry products—		
Poultry raised, number		94,183
Eggs produced, dozen		377,598
Value poultry and eggs produced		\$158,052
Honey and wax—		
Honey produced, pounds		9,702
Wax produced, pounds		170
Value of honey and wax produced		\$924

CALAVERAS COUNTY.

Date of creation, February 18, 1850.

		1890	1900	1910
Land area, 1,027 square miles.	Population-----	8,882	11,200	9,171
County seat, San Andreas.	Population-----	1,640	1,683	1,120
Population per square mile, 8.9.				

Mokelumne Hill (Station):	Highest	Lowest	Inches	Inches
Elevation, 1,550 feet.	1916: Temperature...102	24	Rainfall...35.26	Snow...19.0
	1917: Temperature...104	19	Rainfall...15.22	Snow... 7.0

Calaveras is located on the long, gradual western slope of the Sierra Nevada, a little above the center of the state north and south. The Sierra on the east is an abrupt wall plunging down 10,000 feet in ten miles, while the westward side is a long, grand sweep, full seventy miles from foothill to summit. On the east is the great desert basin of Nevada and Utah; on the west the exuberance of California valleys, rich in meadows, grainfields and orchards. Above the level plain rise the foothills in waves or ripples, hardly distinguishable from the plains at first, but more rolling as you go upward, with long swells of hill and little dales and scattering growth of oak and pine and patches of chaparral.

The elevation rises gradually from about 150 feet to table-lands lying 4,000 feet and peaks of 7,500 feet.

In several parts of the county Angora goats are kept. They are profitable, are hardy, and increase rapidly. The young make excellent "mutton."

Alfalfa is a staple crop wherever it can be irrigated.

CALAVERAS COUNTY SUMMARY.

(Census 1910.)

Number of Farms Classified by Size.			
8 to 9 acres.....	25	Land in 1900.....	1,393,510
10 to 19 acres.....	14	Buildings in 1910.....	664,000
20 to 49 acres.....	48	Buildings in 1900.....	427,190
50 to 99 acres.....	45	Implements and machinery in 1910...	138,905
100 to 174 acres.....	171	Implements and machinery in 1900...	89,030
175 to 259 acres.....	60	Domestic animals, poultry, and bees	
260 to 499 acres.....	127	In 1910.....	791,201
500 to 999 acres.....	80	Domestic animals, poultry, and bees	
1,000 acres and over.....	62	In 1900.....	425,929
Total.....	632	Domestic Animals on Farms and Ranges.	
Total in 1900.....	575	Cattle—	
Land and Farm Areas.		Dairy cows.....	1,824
Approximate land, acres.....	657,280	Other cows.....	8,407
Land in farms in 1910.....	271,401	Yearling heifers.....	2,432
Land in farms in 1900.....	212,820	Calves.....	3,355
Improved land in farms in 1910.....	59,104	Yearling steers and bulls.....	2,657
Improved land in farms in 1900.....	41,402	Other steers and bulls.....	2,902
Woodland in farms.....	149,642	Total.....	20,977
Other unimproved land.....	62,655	Value.....	\$422,395
Value of All Farm Property.		Horses—	
Total in 1910.....	\$3,973,409	Mature horses.....	3,148
Total in 1900.....	2,385,659	Yearling colts.....	302
Per cent increase 1900-1910.....	70.1	Spring colts.....	203
Land in 1910.....	2,376,308	Total.....	3,653
		Value.....	\$264,717

CALAVERAS COUNTY SUMMARY—Continued.

Domestic Animals on Farms and Ranges—Continued.	
Mules—	
Mature mules	25
Yearling colts	18
Spring colts	25
Total	68
Value	\$3,920
Asses and burros—	
Number	27
Value	\$1,850
Swine—	
Mature hogs	2,583
Spring pigs	1,586
Total	4,174
Value	\$24,308
Sheep—	
Rams, ewes, and wethers	10,145
Spring lambs	5,215
Total	15,360
Value	\$54,509
Goats—	
Number	3,843
Value	\$7,981
Total value all domestic animals	\$779,600

Poultry and bees—	
Poultry of all kinds	23,242
Value	\$13,519
Colonies of bees	363
Value	\$992

Principal Crops.

	Acres	Bushels
Corn	80	1,776
Oats	106	2,121
Wheat	51	439
Barley	222	4,833
Kafir corn and milo maize	5	48
Dry edible beans	8	233
Potatoes	147	20,997
Hay and forage—		
	Acres	Tons
Timothy alone	79	72
Timothy and clover mixed	118	290
Clover alone	102	208
Alfalfa	649	2,313
Other tame and cultivated grasses	603	587
Wild, salt, or prairies grasses	4,643	3,431
Grains cut green	9,023	8,787
Totals	15,281	15,686

Poultry products—	
Poultry raised, number	31,410
Eggs produced, dozen	107,897
Value poultry and eggs produced	\$49,807
Honey and wax—	
Honey produced, pounds	8,413
Wax produced, pounds	118
Value of honey and wax produced	\$632
Wool—	
Wool, fleeces shorn	15,677
Mohair and goat hair, fleeces shorn	517
Value wool and mohair produced	\$11,551

Special crops—	
Potatoes, acres	147
All other vegetables, acres	278
Sugar beets, acres	1

	Number bearing trees
Orchard fruits—	
Apples	43,841
Apricots	673
Cherries	459
Peaches and nectarines	5,954
Pears	2,173
Prunes and plums	8,286
Total	81,276

	Number bearing trees
Tropical fruits—	
Figs	1,839
Lemons	19
Oranges	388
Pomeles	3
Olives	4,066
Total	6,315

Grapevines—	
Number in bearing	212,300
Small fruits—	
Strawberries, acres	5
Blackberries and dewberries, acres	14
All others, acres	15
Total	34

	Number bearing trees
Nuts—	
Almonds	14,624
Pecans	6
Wanuts	882
Total	15,519

Irrigation.

Number of farms irrigated in 1909	154
Acres irrigated in 1909	1,275
Acresage enterprises were capable of irrigating in 1910	3,161
Acresage included in projects	3,919
Main ditches, number	143
Length, miles	124
Laterals, number	32
Length, miles	31
Flowing wells, number	6
Pumped wells, number	7
Cost of irrigation enterprises up to July 1, 1910	\$121,033
Average cost per acre irrigation enterprises were capable of irrigating in 1910	32.29

Mineral Production in 1916.

Substance	Amount	Value
Chromite, tons	1,636	\$12,670
Copper, pounds	6,099,509	1,500,479
Gold		1,356,120
Lead, pounds	7,238	499
Mineral water, gallons	18,255	7,025
Platinum, ounces	54	2,453
Silver		83,643
Stone, miscellaneous		2,503
Other minerals		300
Total		\$2,965,592

COLUSA COUNTY.

Date of creation, February 18, 1850.

	1890	1900	1910	1915 (estimated)
Land area, 1,140 square miles.	Population... 14,640	7,364	7,782	-----
County seat, Colusa (town).	Population... 1,336	1,441	1,582	2,000
Population per square mile, 6.8.				

East Park (Station):	Highest	Lowest	Inches	Inches
Elevation, — feet.	1916: Temperature... 109	10	Rainfall... 18.69	Snow... 26.5
Colusa, 60 feet.	1917: Temperature... 109	24	Rainfall... 7.53	Snow... 0

Colusa County is situated in the heart of the great Sacramento Valley. The fertile soil, the temperate climate, the extreme dryness of the atmosphere during two-thirds of the year, and, lastly, a sufficient rainfall, make possible the production of great wealth from the fertile acres of this county.

The western portion of the county is principally mountainous, with some very productive valleys intervening. Cattle and live stock interests prevail. Several mineral springs are located in this portion of the county, and thousands of bottles of mineral water are shipped annually. At Sites two quarries take out stone, known as the famous Colusa sandstone, from which many prominent buildings in San Francisco are built.

Colusa County was one of the first to grow rice, and now has a considerable acreage in that grain.*

Almonds now form an important crop in this county, and in the Arbuckle district about 5,000 trees are planted, but many are still non-bearing. The crop of 1916 amounted to 100 tons, of first-grade quality, and the prices were about 25 per cent higher than the previous year.

COLUSA COUNTY SUMMARY.

(Census 1910.)

Number of Farms Classified by Size.		Land in 1900.....	\$10,885,350
Under 3 acres	1	Buildings in 1910.....	1,204,790
3 to 9 acres	31	Buildings in 1900.....	838,420
10 to 19 acres.....	85	Implements and machinery in 1910.....	419,557
20 to 49 acres.....	85	Implements and machinery in 1900.....	417,660
50 to 99 acres.....	42	Domestic animals, poultry and bees	
100 to 174 acres.....	90	in 1910	1,911,836
175 to 259 acres.....	30	Domestic animals, poultry and bees	
260 to 499 acres.....	129	in 1900	913,053
500 to 999 acres.....	104	Domestic Animals on Farms and Ranges.	
1,000 acres and over.....	120	Cattle—	
Total	667	Dairy cows	3,128
Total in 1900.....	582	Other cows	6571
Land and Farm Areas.		Yearling heifers	2,140
Approximate land, acres.....	729,600	Calves	2,606
Land in farms in 1910.....	522,376	Yearling steers and bulls.....	1,556
Land in farms in 1900.....	550,002	Other steers and bulls.....	2,619
Improved land in farms in 1910.....	336,509	Total	118,750
Improved land in farms in 1900.....	358,227	Value	1420,618
Woodland in farms.....	38,252		
Other unimproved land.....	147,615	Horses—	
Value of All Farm Property.		Mature horses	3,902
Total in 1910.....	\$19,002,208	Yearling colts	481
Total in 1900.....	13,054,483	Spring colts	250
Per cent increase 1900-1910.....	50.2	Total	4,732
Land in 1910.....	16,066,035	Value	428,700

*For details regarding rice, see pages 97-99.

†Includes animals, age or sex not specified.

COLUSA COUNTY SUMMARY—Continued.

Domestic Animals on Farms and Ranges—Continued.		
Mules—		
Mature mules	4,607	
Yearling colts	437	
Spring colts	247	
Total	5,291	
Value	\$329,345	
Asses and burros—		
Number	65	
Value	\$15,275	
Swine—		
Mature hogs	17,646	
Spring hogs	10,418	
Total	28,064	
Value	\$161,174	
Sheep—		
Rams, ewes, and wethers	39,801	
Spring lambs	24,791	
Total	64,592	
Value	\$202,708	
Goats—		
Number	2,154	
Value	\$7,271	
Total value all domestic animals	\$1,874,086	
Poultry and bees—		
Poultry of all kinds	61,113	
Value	\$33,372	
Colonies of bees	1,406	
Value	\$4,378	
Principal Crops.		
	Acres	Bushels
Corn	706	16,619
Oats	771	12,556
Wheat	11,168	221,549
Barley	39,985	1,949,223
Kafir corn and milo maize	2,598	48,418
Dry edible beans	1,083	20,067
Potatoes	439	28,391
Hay and forage—		
	Acres	Tons
Timothy alone	225	305
Timothy and clover mixed	160	191
Clover alone	10	20
Alfalfa	4,242	14,472
Other tame and cultivated grasses	70	85
Wild, salt, or prairie grasses	568	552
Grains cut green	24,221	29,047
All other hay and forage	85	1,107
Total	29,581	45,779
Poultry products—		
Poultry raised, number	73,034	
Eggs produced, dozen	249,229	
Value poultry and eggs produced	\$92,466	
Honey and wax—		
Honey produced, pounds	67,689	
Wax produced, pounds	798	
Value of honey and wax produced	\$5,790	
Wool—		
Wool, fleeces shorn	73,221	
Mohair and goat hair, fleeces shorn	4,009	
Value wool and mohair produced	\$56,620	
Special crops—		
Potatoes, acres	439	
Sweet potatoes, acres	6	
All other vegetables, acres	160	
Sugar beets, acres	211	
Orchard fruits—		
	Number bearing trees	
Apples	3,067	
Apricots	4,420	
Cherries	223	
Peaches and nectarines	4,075	
Pears	2,432	
Prunes and plums	57,408	
Total	71,796	
Tropical fruits—		
	Number bearing trees	
Figs	1,391	
Lemons	199	
Oranges	1,537	
Pomeelos	70	
Olives	336	
Total	3,537	
Grapevines—		
Number in bearing	482,417	
Small fruits—		
Strawberries, acres	1	
Blackberries and dewberries, acres	5	
All others, acres	1	
Total	7	
Nuts—		
	Number bearing trees	
Almonds	16,078	
Pecans	10	
Walnuts	1,306	
Total	17,409	
Irrigation.		
Number of farms irrigated in 1909	112	
Acres irrigated in 1909	4,276	
Acresage enterprises were capable of irrigating in 1910	16,541	
Acresage included in projects	18,788	
Main ditches, number	88	
Length, miles	44	
Laterals, number	10	
Length, miles	7	
Pumped wells, number	3	
Cost of irrigation enterprises up to July 1, 1910	\$76,112	
Average cost per acre irrigation enterprises were capable of irrigating in 1910	4.80	
Mineral Production in 1916.		
Substance	Amount	Value
Quicksilver, flasks	285	\$26,648
Stone, miscellaneous		550
Other minerals*		15,605
Total		\$42,803
Number of mineral springs		
		12

*Includes mineral paint, mineral water and sandstone.

CONTRA COSTA COUNTY.

Date of creation, February 18, 1850.

	1890	1900	1910	1915 (estimated)
Land area, 714 square miles.	Population.. 13,515	18,046	31,674	-----
County seat, Martinez (town).	Population.. 1,600	1,380	2,115	3,000
Population per square mile, 44.4.				

Antioch (Station):	Highest	Lowest	Inches	Inches
Elevation, 46 feet.	1916: Temperature...105	29	Rainfall...15.75	Snow... T
	1917: Temperature...107	30	Rainfall... 5.46	Snow... 0

Contra Costa is one of the central counties, its shore line being within fourteen miles of San Francisco. It possesses unusually good traveling facilities both by rail and by steamer. The county has seventy miles of water front, nearly all of which is upon deep water, navigable by all vessels engaged in commerce. Over three-fourths of its area is cultivated, the balance being used for grazing. The only mountain of any size is Mount Diablo, which is 3,849 feet in height, and almost in the geographical center of the county.

The farming lands in the eastern section are between the foothills and the San Joaquin River. The soil is of a rich, alluvial nature, and produces wheat, barley, alfalfa, fruit, and vines. To the northward and between the uplands and the San Joaquin River is a body of the tule lands, a large portion of which has been reclaimed, and is some of the most productive land in the state, being a rich deposit of sediment and decomposed vegetation. Alfalfa, asparagus, potatoes, beans, etc., are produced on the largest scale on such lands.

Grain raising is very important in this county. A large acreage is planted to barley and hay. The raising of sugar beets is a growing industry. Vegetables of all kinds are raised profitably.

Stock raising is a leading industry, and the reclaimed lowlands for summer grazing and the rolling hills for winter, close together, create conditions whereby a failure is impossible. The stock farms have produced some of the most famous trotting and pacing horses. Port Costa, the shipping point for the bulk of the grain raised in California, has extensive warehouses. Near Vallejo Junction is the largest smelting works in the state; at Vallona are extensive lumber yards, where ships from Oregon and Puget Sound discharge; at Crockett are flouring mills, also the refinery of the California and Hawaiian Sugar Company. At Richmond one of the largest oil refining plants in the state is situated and during the last two years very extensive oil plants have been established at Martinez.

CONTRA COSTA COUNTY SUMMARY.

(Census 1910.)

Number of Farms Classified by Size.		Land and Farm Areas.	
Under 3 acres	19	Approximate land, acres.....	456,980
3 to 9 acres	118	Land in farms in 1910.....	406,433
10 to 19 acres.....	127	Land in farms in 1900.....	406,563
20 to 49 acres.....	221	Improved land in farms in 1910.....	263,152
50 to 99 acres.....	158	Improved land in farms in 1900.....	262,617
100 to 174 acres.....	256	Woodland in farms.....	23,768
175 to 259 acres.....	147	Other unimproved land.....	115,515
260 to 499 acres.....	206		
500 to 999 acres.....	140		
1,000 acres and over.....	74		
Total	1,465		
Total in 1900.....	1,511		

CONTRA COSTA COUNTY SUMMARY—Continued.

Value of All Farm Property.		Principal Crops.		
Total in 1910.....	\$31,812,192	Corn	Acres	Bushels
Total in 1900.....	18,874,837	Oats	293	6,158
Per cent increase 1900-1910.....	68.5	Wheat	1,112	40,178
Land in 1910.....	26,596,160	Barley	2,443	58,382
Land in 1900.....	15,558,110	Dry edible beans.....	18,065	781,970
Buildings in 1910.....	2,493,375	Potatoes	2,156	61,498
Buildings in 1900.....	1,675,790	Hay and forage—	12,637	2,226,065
Implements and machinery in 1910.....	680,520	Oats	Acres	Tons
Implements and machinery in 1900.....	404,590	Clover alone	839	1,374
Domestic animals, poultry and bees		Alfalfa	3,477	8,168
in 1910.....	2,052,137	Other tame and cultivated		
Domestic animals, poultry and bees		grasses	8,325	4,901
in 1900	1,240,897	Wild, salt or prairie grasses	1,050	1,215
		Grains cut green.....	79,368	112,478
		All other hay and forage...	378	449
		Totals	88,937	129,080
Domestic Animals on Farms and Ranges.		Poultry products—		
Cattle—		Poultry raised, number.....		154,332
Dairy cows	9,430	Eggs produced, dozen.....		664,951
Other cows	6,567	Value poultry and eggs produced...		247,618
Yearling heifers	3,240	Honey and wax—		
Calves	4,479	Honey produced, pounds.....		15,950
Yearling steers and bulls.....	1,123	Wax produced, pounds.....		284
Other steers and bulls.....	1,651	Value of honey and wax produced		1,382
Total	26,539	Wool—		
Value	\$647,577	Wool, fleeces shorn.....		14,715
Horses—		Value wool and mohair produced...		10,899
Mature horses	9,494	Special crops—		
Yearling colts	1,095	Potatoes, acres		12,637
Spring colts	644	All other vegetables, acres.....		3,650
Total	11,233	Sugar beets, acres.....		40
Value	\$1,186,119	Orchard fruits—	Number	
Mules—		bearing trees		
Mature mules	564	Apples		13,429
Yearling colts	63	Apricots		38,812
Spring colts	24	Cherries		7,258
Total	651	Peaches and nectarines.....		30,461
Value	\$78,810	Pears		68,068
Asses and burros—		Prunes and plums.....		58,177
Number	6	Total		225,939
Value	\$4,265			
Swine—			Number	
Mature hogs	3,887	bearing trees		
Spring pigs	3,054	Figs		298
Total	6,941	Lemons		148
Value	\$44,330	Oranges		402
Sheep—		Olives		9,744
Rams, ewes, and wethers.....	14,132	Total		10,597
Spring lambs	5,463	Grapevines—		
Total	19,595	Number in bearing.....		2,972,130
Value	\$73,877	Small fruits—		
Goats—		Strawberries, acres		1
Number	17	Blackberries and dewberries, acres...		3
Value	\$76	All others		2
Total value all domestic animals	\$1,965,354	Total		6
Poultry and bees—			Number	
Poultry of all kinds.....	118,944	bearing trees		
Value	\$64,973	Nuts—		
Colonies of bees.....	698	Almonds		209,056
Value	\$2,110	Pecans		25
		Walnuts		110,083
		Total		219,249

CONTRA COSTA COUNTY SUMMARY—Continued.

Irrigation.		Mineral Production in 1916.		
		Substance	Amount	Value
Number of farms irrigated in 1909....	78	Brick, M	16,672	\$148,730
Acres irrigated in 1909.....	26,856	Mineral water, gallons.....	351,724	6,154
Acres enterprises were capable of irrigating in 1910.....	32,562	Stone, miscellaneous		363,753
Acres included in projects.....	32,610	Other minerals*		760,423
Main ditches, number.....	176			
Length, miles	172	Total		\$1,279,060
Flowing wells, number.....	1			
Pumped wells, number.....	26	*Includes cement, clay, coal and limestone.		
Cost of irrigation enterprises up to July 1, 1910	\$90,508			
Average cost per acre irrigation enterprises were capable of irrigat- ing in 1910.....	2.78			

DEL NORTE COUNTY.

Date of creation, March 2, 1857.

	1890	1900	1910	1915 (estimated)
Land area, 1,024 square miles.	Population-- 2,592	2,408	2,417	-----
County seat, Crescent City.	Population-- 907	699	1,114	1,200
Population per square mile, 2.4.				

		Highest	Lowest	Inches	Inches
Elevation, 125 feet.	1916: Temperature---	93	27	Rainfall---91.16	Snow---13.5
	1917: Temperature---	93	26	Rainfall---69.60	Snow---T

Del Norte is the extreme northwestern county of California and has a coast line of about 35 miles. Crescent City, the county seat and principal harbor, is 280 miles from San Francisco.

Smith and Klamath are the principal streams, the former in the northern and the latter in the southern part of the county. Both are navigable near their mouths to the small ocean-going steamers. Dairying and lumbering are the principal industries. The mountains of the county prospect well in copper and gold-bearing formations.

Creosote City is the chief shipping point. Products usually are sent to the San Francisco market. The county is rich in undeveloped mineral resources.

Del Norte rivals Alpine County in regard to inaccessibility, transportation being by wagon and mule back, with one or two stage lines to Crescent City. Its chief mineral resources, largely untouched, are chromite, copper, gems, gold, graphite, iron, platinum and silver.

DEL NORTE COUNTY SUMMARY.

(Census 1910.)

Number of Farms Classified by Size.		Domestic Animals on Farms and Ranges.	
3 to 9 acres	2	Cattle—	
10 to 19 acres	6	Dairy cows	3,575
24 to 49 acres	9	Other cows	620
50 to 99 acres	13	Yearling heifers	849
100 to 174 acres	31	Calves	1,306
175 to 259 acres	11	Yearling steers and bulls	273
260 to 499 acres	23	Other steers and bulls	234
500 to 999 acres	10		
1,000 acres and over	9	Total	6,857
		Value	\$137,380
Total	114		
Total in 1900	131	Horses—	
		Mature horses	392
		Yearling colts	45
		Spring colts	14
		Total	441
		Value	\$37,235
		Mules—	
		Mature mules	3
		Value	\$475
		Swine—	
		Mature hogs	1,153
		Spring pigs	617
		Total	1,770
		Value	\$8,451
		Sheep—	
		Rams, ewes, and wethers	1,341
		Spring lambs	500
		Total	1,841
		Value	\$5,003

DEL NORTE COUNTY SUMMARY—Continued.

Domestic Animals on Farms and Ranges—Continued.			Wool—		
Goats—			Wool, fleeces shorn.....		
Number	465		Mohair and goat hair, fleeces shorn.....		
Value	\$1,245		Value wool and mohair produced..		
Total value all domestic animals			\$2,070		
\$189,879			Special crops—		
Poultry and bees—			Potatoes, acres		
Poultry of all kinds.....	3,911		All other vegetables, acres.....		
Value	\$2,175		69		
Colonies of bees.....	78		29		
Value	\$223		Orchard fruits—		
Principal Crops.			Number		
			bearing trees		
			Apples		
Corn	1	12	Cherries		
Oats	216	12,078	Peaches and nectarines.....		
Barley	32	840	Pears		
Dry edible beans.....		10	Prunes and plums.....		
Potatoes	69	9,809	Total		
Hay and forage—			3,549		
			Tropical fruits—		
Timothy alone	6	11	Figs		
Timothy and clover mixed..	49	148	Number		
Clover alone	63	169	bearing trees		
Alfalfa	33	90	1		
Other tame and cultivated			Small fruits—		
grasses	1,093	1,853	Strawberries, acre		
Wild, salt, or prairie grasses	50	50	1		
Grains cut green.....	1,539	3,597	Nuts—		
All other hay and forage...	249	4,213	Pecans		
Totals			Walnuts		
3,052			Total		
10,131			6		
Poultry products—			Mineral Production in 1916.		
Poultry raised, number.....	3,357		Substance		
Eggs produced, dozen.....	13,767		Amount		
Value poultry and eggs produced..	\$4,651		Value		
Honey and wax—			Gold		
Honey produced, pounds.....	1,395		Platinum, ounces		
Value	\$152		Silver		
			Stone, miscellaneous		
			Other minerals*		
			Total		
			\$2,432		

*Includes chromite and copper.

EL DORADO COUNTY.

Date of creation, February 18, 1850.

	1890	1900	1910	1915 (estimated)
Land area, 1,753 square miles.	Population... 9,232	8,966	7,492	-----
County seat, Placerville.	Population... 1,690	1,748	1,914	2,150
Population per square mile, 4.3.				

	Highest	Lowest	Inches	Inches
Elevation, 1,875 feet.	1916: Temperature...100	14	Rainfall...45.27	Snow...34.0
	1917: Temperature...105	18	Rainfall...20.58	Snow...15.0

El Dorado County is situated on the western slope of the Sierra Nevada Mountains, in the eastern portion of the state. The county is about 75 miles long and about 30 miles in width. The western portion of the county borders the Sacramento Valley, and is used principally for grazing, stock raising, also grape and fruit growing. The central portion of the county includes the great mineral belt, known as the "Mother Lode," from which millions of dollars have been extracted on and near the surface in its infancy. It was in this county that gold was first discovered in California. There is also a large quantity of limestone in the county which is shipped for use in the manufacture of cement. In the foothills can be found some of the best fruit lands in the state.

The eastern portion, being at an altitude of from 3,000 to 7,000 feet, supplies summer pasturage for a number of cattle, sheep, and horses. In this region water is abundant, awaiting capital and labor to harness the everflowing streams. Most of this area is covered by a virgin growth of sugar and white pine, fir, and cedar timber.

While fruit growing has been found to be more profitable here than in most parts of the state, potatoes are now attracting much attention. There will probably be twenty thousand sacks or over raised in the vicinity of Placerville during this season. They are beautiful, smooth skinned, perfectly shaped, and, on account of the high dry altitude, are extremely mealy.

Several hundred acres of young pear trees have been planted in the last five or six years and in another year or two the output of Bartlett pears will have been doubled. In 1916, 179 cars of deciduous fruits were shipped east, and in 1917, 250 cars.

EL DORADO COUNTY SUMMARY.

(Census 1910.)

Number of Farms Classified by Size.		Value of All Farm Property.	
3 to 9 acres	26	Total in 1910.....	\$3,775,858
10 to 19 acres.....	21	Total in 1900.....	2,590,574
20 to 49 acres.....	60	Per cent increase 1900-1910.....	45.7
50 to 99 acres.....	88	Land in 1910.....	2,343,931
100 to 174 acres.....	212	Land in 1900.....	1,546,240
175 to 259 acres.....	100	Buildings in 1910.....	749,745
260 to 499 acres.....	122	Buildings in 1900.....	566,120
500 to 999 acres.....	52	Implements and machinery in 1910...	162,185
1,000 acres and over.....	35	Implements and machinery in 1900...	116,320
Total	716	Domestic animals, poultry, and bees in 1910	519,497
Total in 1900.....	769	Domestic animals, poultry, and bees in 1900	361,894
Land and Farm Areas.			
Approximate land, acres.....	1,121,920		
Land in farm in 1910.....	210,881		
Land in farm in 1900.....	209,320		
Improved land in farms in 1910.....	41,682		
Improved land in farms in 1900.....	45,481		
Woodland in farms.....	137,067		
Other unimproved land.....	82,142		

EL DORADO COUNTY SUMMARY—Continued.

Domestic Animals on Farms and Ranges.				Poultry products—			
Cattle—				Poultry raised, number.....			
Dairy cows	2,323			Eggs produced, dozen.....		25,400	
Other cows	4,383			Value poultry and eggs produced ..		122.97	
Yearling heifers	1,683					\$45.17	
Calves	2,154			Honey and wax—			
Yearling steers and bulls.....	1,138			Honey produced, pounds.....		8,305	
Other steers and bulls.....	912			Wax produced, pounds.....		5	
				Value of honey and wax produced ..		288	
Total	13,048			Wool—			
Value	\$254,098			Wool, fleeces shorn.....		1,302	
Horses—				Mohair and goat hair, fleeces shorn		200	
Mature horses	2,274			Value wool and mohair produced ..		\$3,504	
Yearling colts	180			Special crops—			
Spring colts	90			Potatoes, acres		113	
				All other vegetables, acres.....		17	
Total	2,544			Orchard fruits—			
Value	\$302,610				Number bearing trees		
Mules—				Apples		31,200	
Mature mules	93			Apricots		2,052	
Yearling colts	9			Cherries		3,250	
Spring colts	10			Peaches and nectarines.....		61,500	
				Pears		45,572	
Total	112			Prunes and plums.....		22,704	
Value	\$10,180			Total		180,617	
Asses and burros—					Number bearing trees		
Number	17			Tropical fruits—			
Value	\$2,985						
Swine—				Figs		807	
Mature hogs	1,428			Oranges		53	
Spring pigs	973			Olives		37	
				Total		677	
Total	2,401			Grapevines—			
Value	\$18,502			Number in bearing.....		551,342	
Sheep—				Small fruits—			
Rams, ewes and wethers.....	1,763			Strawberries, acres		5	
Spring lambs	1,899			Blackberries and dewberries, acres		11	
				All others, acres.....		7	
Total	3,162			Total, acres		23	
Value	\$11,680			Nuts—			
Goats—					Number bearing trees		
Number	3,315			Almonds		438	
Value	\$7,186			Walnuts		890	
Total value all domestic animals	\$189,879			Total		1,313	
Poultry and bees—				Irrigation.			
Poultry of all kinds.....	24,308			Number of farms irrigated in 1909...		244	
Value	\$12,057			Acres irrigated in 1909.....		5,122	
Colonies of bees.....	464			Acresage enterprises were capable of			
Value	\$1,079			irrigating in 1910.....		5,501	
Principal Crops.				Acresage included in projects.....		20,304	
	Acres	Bushels		Main ditches, number.....		58	
Corn	38	788		Length, miles		285	
Oats	543	10,504		Laterals, number		25	
Wheat	193	3,201		Length, miles		35	
Barley	50	884		Cost of irrigation enterprises up to			
Potatoes	113	18,513		July 1, 1910		\$346,339	
Hay and forage.....	Acres	Tons		Average cost per acre irrigation			
Timothy alone	13	14		enterprises were capable of irrigat-			
Timothy and clover mixed.....	443	466		ing in 1910.....		\$63.07	
Clover alone	234	493		Mineral Production in 1916.			
Alfalfa	407	824			Substance	Amount	Value
Other tame and cultivated				Chromite, tons	5,260	\$72,500	
grasses	447	508		Gold		\$61,821	
Wild, salt, or prairie grasses	2,535	2,191		Lime and limestone.....		19,613	
Grains cut green.....	7,989	7,142		Silica, tons	896	1,777	
All other hay and forage.....	47	47		Silver		1,486	
				Stone, miscellaneous		12,000	
Totals	12,115	11,685		Other minerals*		1,490	
				Total		\$470,697	

*Includes copper and soapstone.

FRESNO COUNTY.

Date of creation, April 19, 1856.

(Census 1910.)

	1890	1900	1910	1918 (estimated)
Land area, 5,950 square miles.	Population.. 32,025	37,862	75,657	-----
County seat, Fresno (city).	Population.. 10,818	12,470	24,892	34,958
Population per square mile, 12.7.				

	Highest	Lowest	Inches	Inches
Elevation, 293 feet.	1916: Temperature...108	28	Rainfall...12.50	Snow... 0.9
	1917: Temperature...109	25	Rainfall... 3.91	Snow... T

Including vineyards, Fresno County is the greatest fruit and wine producer. It is situated in the center of the state and in the middle of the fertile San Joaquin Valley. There are only five counties which exceed Fresno in size—San Bernardino, Inyo, Kern, Riverside, and Siskiyou, in the order named. When Fresno was first formed it was considerably larger, but on the eleventh of March, 1893, a large slice, consisting of 2,121 square miles, was carved out of the northern part of the county and formed into Madera County; and still more recently, Fresno County was again reduced in size by 202 square miles of the southeast portion being transferred to Kings County by an act of the legislature approved April 12, 1909. Before being partitioned, Fresno County comprised 8,214 square miles, but although the land area has been thus reduced to 5,950 square miles, the county ranks sixth of the fifty-eight in the state, and is one of the most productive. It is also the fifth largest in population, being only exceeded by San Francisco, Los Angeles, Alameda and Santa Clara. The word "Fresno," in Spanish, signifies ash tree, and it was because of the abundance of mountain ash in the mountains of this county that it received its name.

Fresno County is naturally subdivided into two portions—plains and mountains. The plains are the bottom of the San Joaquin Valley, extending from the foot of the Coast Range on the west to the foothills of the Sierra Nevadas on the east. From the first foothills the rise is rapid, the mountains culminating in peaks rising 10,000 to 12,000 feet, Mount Lyell being 13,217 feet high. The country about Fresno is a vast plain intersected by the San Joaquin and Kings rivers and their tributaries. Four natural soil divisions have been recognized—the foothill region, where agriculture was formerly confined to grazing; the plains of the valley, with red soils lying near the hills; the "white ash" soil found farther out in the plain, and the bottoms, or alluvial lands, along the Kings River.

There is a dry and a wet season, the former from about May to September, and the latter from the middle of October or early part of November. The rains, which are at irregular intervals during the winter, seldom last more than two or three days at a time. There are about 238 days of sunshine in the year. The atmosphere during the summer months is dry, and the heat not nearly so oppressive as in the East and other places where the humidity is great. Sunstroke is unknown.

The county has passed through four stages of development. First came mining in the early days before it was organized as a county, and this period extended to about 1860-64. Secondly, came the stock-

raising period, which arose from the gradual disappearance of placer mining, and lasted until 1874, although sheep raising still continued on a large scale; thirdly, about 1868, the farming interests sprang up although prior to the advent of a railroad in 1870, agriculture amounted to very little. The fourth, and most important, may be called the viticultural and fruit era, which began to come into prominence early in the eighties, and has now become the leading feature of the county.

As California holds the first place among all the states in the Union in irrigation, so Fresno is the leading county in the state, both in number and extent of its canals and ditches, having more than double the acreage under irrigation than has any other county.

During the last ten years, the dairy industry has made great progress, except in the manufacture of cheese, which, however, was never produced on a very large scale.

Including grapes, Fresno produces more fruit than any other county in the state. Fresno County holds the first place in the production of grapes, raisins, peaches, figs, sweet wines, and brandy, and is one the leading counties of the state in the production of apricots, and olives, and the acreage in figs and citrus fruits is rapidly increasing.

Fresno is one of the largest producers of olive oil and pickled olives in the state, both being of a very high grade.

In figs, the county has been a large producer for many years, and is noted for the now well-known Smyrna, or "Calimyrna" figs, which were first introduced into this state by George C. Roeding, of Fresno. The quantity now packed in Fresno amounts to several thousand tons per annum, and in 1917 upwards of 1,500 acres were planted.

Since 1884, when the White Adriatic was introduced into the county, the cultivation of figs has become an important industry. It is estimated that the total pack in 1916 amounted to 5,000 tons, of which about 3,800 tons are White Adriatic, 400 tons of Smyrna, and 100 tons of Black Mission figs.

The acreage in fruits in 1917, as estimated by the County Horticultural Commissioner is as follows:

Four thousand seven hundred and thirty-nine carloads of table grapes and 32,537 boxes of oranges were shipped out of the county in 1917.*

Vineyard, 1917	Acres	Fruit, 1917	Acres
Muscat	73,950	Peaches	21,627
Thompson	44,058	Apricots	1,346
Sultana	5,615	Figs	1,666
Malaga	12,794	Oranges	1,729
Feherezagos	2,361	Olives	350
Emperor	†	Plums and prunes.....	512
Wine grape	†		

The varieties of fish include salmon, black bass, trout, and catfish, all of which are plentiful.

There is an abundance of game, including quail, doves, a large variety of ducks and wild geese, but there is no means at present of ascertaining

*For full details regarding raisins, peaches, figs, and other fruits in the county, see Part VII, on Horticulture.

†Not known.

either the quantity or money value of either fish or game. The sums received for hunting licenses, however, are considerable.

The value of the lumber industry to the county is very large, upwards of two million dollars a year, comprising sugar pine, white pine, fir, and sequoia.

The great increase in the manufactures of Fresno is due chiefly to the increase in the canning and preserving of fruits and vegetables, the value of products for which amounted to \$6,942,440, and formed 70.5 per cent of the total value of all the manufacturing industries of the city. In 1909 the total value of all products amounted to \$11,090,000 and in 1914 to \$16,520,000, or an increase in five years of 49 per cent. Most of the fruit preserving of Fresno is by the drying or evaporating process, and the greatest crop is in raisins, in which Fresno leads the world.

In recent years the production of petroleum in Fresno County has developed from a small beginning into one of the most important industries. In 1900 the wells in the county at Coalinga produced 532,000 barrels of the value of about \$547,960; in 1916 the production was 14,594,246 barrels valued at \$7,530,631. The county ranks third in the state in the value of minerals produced, the total in 1916 being \$8,061,193.*

FRESNO COUNTY SUMMARY. (Census 1910.)

Number of Farms Classified by Size.		Domestic Animals on Farms and Ranges.	
Under 3 acres	6	Cattle—	
3 to 9 acres	287	Dairy cows	22,241
10 to 19 acres	508	Other cows	42,001
20 to 49 acres	3,240	Yearling heifers	13,117
50 to 99 acres	951	Calves	12,682
100 to 174 acres	609	Yearling steers and bulls	15,854
175 to 259 acres	142	Other steers and bulls	22,230
260 to 499 acres	202		
500 to 999 acres	119	Total	127,025
1,000 acres and over	111	Value	\$3,258,420
Total	6,245	Horses—	
Total in 1900	*3,290	Mature horses	22,068
Land and Farm Areas.		Yearling colts	1,899
Approximate land, acres	3,808,000	Spring colts	1,047
Land in farms in 1910	1,106,616		
Land in farms in 1900	1,284,736	Total	25,009
Improved land in farms in 1910	591,205	Value	\$2,583,216
Improved land in farms in 1900	786,337	Mules—	
Woodland in farms	93,194	Mature mules	3,498
Other unimproved land	423,217	Yearling colts	296
		Spring colts	183
Value of All Farm Property.			
Total value in 1910	\$92,583,058	Total	3,979
Total value in 1900	42,829,479	Value	\$584,990
Per cent increase 1900-1910	†	Asses and burros—	
Land in 1910	75,136,654	Number	101
Land in 1900	84,201,530	Value	\$34,883
Buildings in 1910	6,861,280	Swine—	
Buildings in 1900	3,092,140	Mature hogs	20,134
Implements and machinery in 1910	3,228,706	Spring pigs	13,016
Implements and machinery in 1900	1,593,890		
Domestic animals, poultry, and bees in 1910	7,356,409	Total	33,150
Domestic animals, poultry, and bees in 1900	3,941,919	Value	\$230,325

*For details regarding petroleum, see Part XIII.

†In comparing the data secured in 1910 with that for 1900, it should be remembered that a part of the county was transferred to Kings County in 1909.

FRESNO COUNTY SUMMARY—Continued.

Domestic Animals on Farms and Ranges—Continued.				
Sheep—			Orchard fruits—	Number bearing trees
Rams, ewes, and wethers.....	94,757		Apples	32,097
Spring lambs	47,254		Apricots	186,823
			Cherries	2,729
Total	142,011		Peaches and nectarines.....	2,277,314
Value	\$555,057		Pears	13,356
			Prunes and plums.....	66,926
Goats—			Total	2,579,859
Number	4,558			
Value	\$8,485		Grapevines—	
			Number in bearing.....	40,697,207
Total value all domestic animals	\$7,205,046			
Poultry and bees—			Small fruits—	
Poultry of all kinds.....	213,108		Strawberries, acres	148
Value	\$116,504		Blackberries and dewberries, acres	91
Colonies of bees.....	9,242		All others, acres.....	71
Value	\$34,859		Total acres	310
Principal Crops.				
	Acres	Bushels	Nuts—	Number bearing trees
Corn	1,422	87,726	Almonds	7,390
Oats	1,554	20,027	Pecans	56
Wheat	7,829	97,891	Walnuts	634
Barley	32,132	604,234	Total	8,303
Kafir corn and milo maize.....	1,089	37,506		
Dry edible beans.....	9	155		
Potatoes	218	23,891		
			Irrigation.	
Hay and forage—	Acres	Tons	Number of farms irrigated in 1909.....	5,310
Timothy and clover mixed.....	3	6	Acres irrigated in 1909.....	402,318
Clover alone	10	62	Acres enterprises were capable of irrigating in 1910.....	560,336
Alfalfa	47,776	167,217	Acres included in projects.....	633,652
Other tame and cultivated grasses	243	208	Main ditches, number.....	254
Wild, salt, or prairie grasses	2,741	2,348	Length, miles	831
Grains cut green.....	44,159	43,863	Laterals, number	698
All other hay and forage.....	333	980	Length, miles	1,354
Totals	90,265	214,659	Flowing wells, number.....	3
			Pumped wells, number.....	855
Poultry products—			Cost of irrigation enterprises up to July 1, 1910.....	\$1,808,460
Poultry raised, number.....	266,221		Average cost per acre irrigation enterprises were capable of irrigating in 1910.....	\$3.39
Eggs produced, dozen.....	1,267,840			
Value of poultry and eggs produced	\$419,265			
Honey and wax—			Mineral Production in 1916.	
Honey produced, pounds.....	616,009		Substance	Amount
Wax produced, pounds.....	7,261		Chromite, tons	9,063
Value of honey and wax produced.	\$33,556		Copper, pounds	29,173
			Gold	693
Wool—			Granite, cu. ft.....	11,000
Wool, fleeces shorn.....	107,802		Lead, pounds	608
Mohair and goat hair, fleeces shorn	1,900		Magnesite, tons	5,829
Value of wool and mohair produced	\$109,962		Natural gas, M cu. ft.....	2,346,917
			Petroleum, bbls.	14,594,246
Special crops—			Silver	69
Potatoes, acres	218		Stone, miscellaneous	95,830
Sweet potatoes, acres.....	57		Other minerals*	36,900
All other vegetables, acres.....	1,391		Total	\$8,061,133
Sugar beets, acres.....	228			
			Mineral springs	9
Tropical fruits—	Number bearing trees			
Figs	120,124			
Lemons	12,389			
Oranges	85,781			
Pomeloes	346			
Olives	72,788			
Total	291,754			

*Includes brick, fuller's earth and mineral water.

GLENN COUNTY.

Date of creation March 11, 1891.

	1890	1900	1910	1915 (estimated)
Land area, 1,259 square miles.	Population--	5,150	7,172	-----
County seat, Willows (town).	Population--	893	1,139	3,000
Population per square mile, 5.7.				

	Highest	Lowest	Inches	Inches
Elevation, 136 feet.	1916: Temperature...111	24	Rainfall...17.41	Snow...14.0
	1917: Temperature...112	25	Rainfall... 8.82	Snow... 0

Glenn County occupies a central position in the Sacramento Valley, extending from the summit of the Coast Range across the Sacramento eastward, one-third being mountainous, but affording good summer pasturage for stock. About the same area is in the foothills, with many fertile ranches, and the remaining third practically a level valley floor of wonderfully fertile soil, which has for the past forty years been continuously cropped to grain and still continues to produce good crops.

The United States Reclamation Service has installed a system to irrigate 14,000 acres of the fertile lands about the town of Orland. This project is designed as a model irrigation system, and was undertaken by the reclamation service to demonstrate the benefits of irrigation under perfect conditions of soil and climate. The works consist of an impounding dam, situated at East Park in Colusa County, a diversion dam at the Buttes in Tehama County, and 99 miles of canals and main laterals, about 100 miles of small field ditches.

Owing to the extensive system of grain farming, and the very limited number of small irrigated farms, the average farm in Glenn County up to recent years was large. Within the last few years a considerable acreage in rice has been grown.

The county roads are excellent. They are graded, graveled, and kept in splendid condition, the gravel in all parts of the county being particularly adapted to road making.

Glenn County is the hunter's paradise. Black bass, striped bass, salmon, perch, catfish, trout, and many other varieties abound in the Sacramento River, and the mountain streams are full of speckled trout, while the heavy growth of brush along the river banks and in the foothills is full of quail, deer, squirrels, and other game, whereas from the middle of November to the first of March, when the wild geese and ducks come into winter quarters, good sport is enjoyed. the hunters killing them by the hundreds.

GLENN COUNTY SUMMARY—Continued.

		Number	
		bearing trees	
Orchard fruits—			
Apples	-----	4,617	
Apricots	-----	6,830	
Cherries	-----	78	
Peaches and nectarines	-----	6,420	
Pears	-----	1,655	
Prunes and plums	-----	24,990	
Total	-----	44,565	
Tropical fruits—		Number	
		bearing trees	
Figs	-----	879	
Lemons	-----	593	
Oranges	-----	4,890	
Pomelos	-----	5	
Olives	-----	445	
Total	-----	6,783	
Grapevines—			
Number in bearing	-----	20,416	
Small fruits—			
Strawberries, acres	-----	2	
Blackberries and dewberries, acres	-----	4	
All others, acres	-----	2	
Total	-----	8	
		Nuts—	
		Number	
		bearing trees	
Almonds	-----	25,739	
Pecans	-----	15	
Walnuts	-----	220	
Total	-----	26,336	
		Irrigation.	
Number of farms irrigated in 1909		196	
Acres irrigated in 1909		5,661	
Acreage enterprises were capable of irrigating in 1910		16,804	
Acreage included in projects		220,664	
Main ditches, number		50	
Length, miles		186	
Laterals, number		554	
Length, miles		1,073	
Pumped wells, number		105	
Cost of irrigation enterprises up to July 1, 1910		\$1,519,561	
Average cost per acre irrigation enterprises were capable of irrigating in 1910		90.43	
		Mineral Production in 1916.	
Substance		Value	
Stone, miscellaneous		\$41,180	
Other minerals		39,982	
Total		\$81,162	

HUMBOLDT COUNTY.

Date of creation, May 2, 1853.

	1890	1900	1910	1915 (estimated)
Land area, 3,634 square miles.	Population... 23,469	27,101	33,857	
County seat, Eureka.	Population... 4,858	7,327	11,845	14,654
Population per square mile, 9.3.				

	Highest	Lowest	Inches	Inches
Elevation, 64 feet.	1916: Temperature... 75	81	Rainfall... 37.95	Snow... 14
	1917: Temperature... 82	27	Rainfall... 28.73	Snow... 0

Humboldt County has long laid virtually undisturbed in the north-western part of California. There is no section of the state today where natural resources give so great an opportunity for development.

While the greater portion of the county's surface is hilly, there is considerable level land around Humboldt Bay and along the numerous rivers which flow down from the mountains to the ocean. All of this land, both hill and dale, is very fertile and productive, and is principally utilized for farming, dairying, and fruit raising. The fact has been well established that here can be raised as good fruit of all kinds as in the state. Fruit grown here is nearly altogether free from insect pests; the codling moth, which is so ruinous to the apple business in a great many localities, has not yet gained a foothold here. The county possesses the largest bulb farm in the state, details of which are given on page 127.

A great variety of berries grows in profusion in all parts where cultivated, and wild blackberries, huckleberries, and strawberries grow in almost every section of the county. The wild blackberry is especially abundant and of the finest flavor.

There are abundant streams and springs throughout the county, which furnish plenty of pure water to its inhabitants the year round and render irrigation absolutely unnecessary.

Humboldt stands third among the counties of the state in the production of butter.

Lumbering is the chief industry of the county; the output of the lumber and shingle mills, and sash and door factories is greater than that of any other county in the state, and also contains more standing redwood timber than any other county.

Stock raising is carried on extensively throughout the county, and is one of its most important industries. Gold mining is carried on to some extent along the Klamath and Trinity rivers. Commercial fishing is also an important industry.

The railway from San Francisco has recently been extended through the county to Eureka and on to Trinidad, which will greatly help its development.

Eureka, the county seat and principal city, has many shipping and lumber manufactures, and during 1917 the ship building industry has been largely extended.

Arcata, the town next in size, had an estimated population of 2,000 on January 1, 1915. It depends chiefly upon the farming and dairying region surrounding it, and also has a barrel stave factory, a tannery, and minor manufactures. The Humboldt State Normal School is located here.

Ferndale, estimated population 1,600, is in the heart of the Eel River dairying section. Farming and dairying are the leading industries.

Fortuna, estimated population 1,600, also in the Eel River Valley, depends upon farming, dairying and lumber manufacturing.

Blue Lake, population 700, in the Mad River farming district, depends upon farming and dairying.

Loleta, population 600, depends upon dairying and farming, and has a condensed milk plant.

Fields Landing, population 400, depends upon shipping and has the workshops of the Northern Pacific Railroad Company.

Scotia, 1,300; Samoa, 1,000, and Korbel, 700, are each sawmill towns, devoted almost wholly to lumber manufacturing.

HUMBOLDT COUNTY SUMMARY.

(Census 1910.)

Number of Farms Classified by Size.	
Under 3 acres	10
3 to 9 acres	78
10 to 19 acres	107
20 to 49 acres	230
50 to 99 acres	245
100 to 174 acres	334
175 to 259 acres	118
260 to 499 acres	147
500 to 999 acres	84
1,000 acres and over	131
Total	1,534
Total in 1900	1,500

Land and Farm Areas.	
Approximate land, acres	2,325,700
Land in farms in 1910	642,536
Land in farms in 1900	648,511
Improved land in farms in 1910	105,248
Improved land in farms in 1900	77,238
Woodland in farms	174,354
Other unimproved land	362,934

Value of All Farm Property.	
Total value in 1910	\$21,330,881
Total value in 1900	13,341,799
Per cent increase 1900-1910	60.3
Land in 1910	16,378,082
Land in 1900	9,524,850
Buildings in 1910	2,054,525
Buildings in 1900	1,282,890
Implements and machinery in 1910	444,230
Implements and machinery in 1900	311,020
Domestic animals, poultry, and bees in 1910	2,354,044
Domestic animals, poultry, and bees in 1900	2,123,049

Domestic Animals on Farms and Ranges.	
Cattle —	
Dairy cows	21,572
Other cows	7,837
Yearling heifers	5,531
Calves	8,324
Yearling steers and bulls	3,413
Other steers and bulls	6,590
Total	53,277
Value	\$1,363,050

Horses—	
Mature horses	5,851
Yearling colts	421
Spring colts	131
Total	6,403
Value	\$691,639

Mules—	
Mature mules	180
Value	\$13,940

Asses and burros—	
Number	11
Value	\$850

Swine—	
Mature hogs	7,633
Spring pigs	4,945
Total	12,633
Value	\$58,457

Sheep—	
Rams, ewes, and wethers	62,423
Spring lambs	24,650
Total	87,073
Value	\$278,768

Goats—	
Number	2,747
Value	\$12,477

Total value all domestic animals	
	\$2,313,676

Poultry and bees—	
Poultry of all kinds	54,334
Value	\$30,037
Colonies of bees	1,303
Value	\$5,331

Principal Crops.		
	Acres	Bushels
Corn	253	7,633
Oats	2,323	75,303
Wheat	124	3,370
Barley	1,296	65,901
Dry edible beans	18	32
Potatoes	1,103	154,433

*Includes animals, age and sex not specified.

IMPERIAL COUNTY.

Date of creation, August 15, 1907.

(Organized from part of San Diego County.)

	1890	1900	1910	1915 (estimated)
Land area, 4,089 square miles.	Population--	-----	13,591	-----
County seat, El Centro (city).	Population--	-----	1,610	6,000
Population per square mile, 3.3.				

Calverton (Station):	Highest	Lowest	Inches	Inches
Elevation, 0 feet.	1916: Temperature...116	25	Rainfall... 4.44	Snow... 0
Brawley, -105 feet.	1917: Temperature...118	30	Rainfall... 1.84	Snow... 0

Imperial is the youngest county in the state, having been formed in 1907, from the eastern part of San Diego County, formerly known as the "Colorado Desert, or Imperial Valley." The progress of the county is practically confined to the central part of the valley. Imperial County is well known as the largest producer of cotton in California. In 1917 there were two cottonseed oil mills, two compressors and 33 cotton gins in the valley.

The cultivation of cotton holds a most important part in the industrial development of Imperial County.*

Imperial Valley is 110 miles long by 40 miles wide, half in California, half in Mexico. The present irrigated area is 40 by 25 miles in California. Irrigated from the Colorado River, from which 50,000 miner's inches are available. The surface appears to be perfectly level, but slopes gradually northward, affording a sufficient fall for the waters of the irrigation system.

About a hundred thousand acres in the valley is in alfalfa and is the basis of its live-stock farming.

Imperial Valley is one of the best stock, hog, and poultry-producing counties.

Dairying is very profitable, owing to the fact that alfalfa grows throughout the winter, furnishing an abundant supply of green pasturage. Modern creameries, with latest appliances, are located in different sections. In the production of butter the county ranks second, the output being only exceeded by Stanislaus County.

The irrigation system which supplies the valley with water from the Colorado River is the largest unit project in the United States and is operated by the people of the valley themselves. Approximately 500,000 acres are in cultivation in the valley. The chief engineer of the system says the present supply of water is safe for 1,200,000 acres and that with the construction of one or two reservoirs, which will store 2,000,000 acre-feet of water, the supply will be adequate for every acre of land susceptible of irrigation from the Colorado River.

At El Centro, a plant has been established for the manufacture of cottonseed oil and cottonseed cake on which a large number of cattle are fattened.

(Information supplied by County Horticultural Commissioner.)

The crops consist mostly of alfalfa, barley, corn and cotton, and cattle. Since the year 1912, and including the year 1917, the following fruit and other trees have been brought into the county, according to the records of the office: 1,528 almond, 4,632 apple, 16,748 apricot, 130,998

*For details regarding the cotton crop, see pages 101-103.

berry, 68 cherry, 4,702 fig, 2,088 grape, 2,190 lemon, 22,207 olive, 40,296 orange, 9,983 peach, 8,499 pear, 1,485 plum, 270 prune, and 625,247 ornamental. A few imported date palms and many thousand date seeds have been planted. This gives an idea as to the principal kinds of fruit now growing in the county.

On account of the extremely long hot season, fruit ripens very early, going on the market the first of the season with no competition, the producers thereby receive very attractive returns. Grapes are one of the best and leading fruits of the valley, the early varieties, Persians, begin ripening the first of June, followed closely by the Thompson seedless then the Malagas, which continue through the shipping season to about the last of July. Many other varieties do well here that have not been successfully grown in other sections of the state. Experiments are being made with many other varieties and there are some now very promising that may take the place of the present commercial varieties. There are 1,010 acres of old bearing vines and several hundred acres of new plantings. About 180 cars of the fruit crop are shipped East each year.

Grapefruit has proven to be the best of the citrus fruits, young trees three years old have the size of trees in other localities twice their age and yield considerable fruit. There has been more grapefruit trees planted in this county than any other variety.

Lemons do very well, growing a very juicy fruit, with thin skin and full of acid.

Many varieties of oranges have been tried out, the seedlings produce the best quality of fruit. However, the Washington navels ripen the first of November and should be picked as soon as ripe for best results.

There are many olive trees planted in different sections of the valley, the largest orchard consists of 40 acres. Of the deciduous fruit, the apricot is in the lead. The early varieties ripen by April the twentieth, and shipments continue until the last of May. Newcastle and Royal are the principal varieties. It is almost unbelievable how fast apricot trees grow in this valley, with good care a year old tree is the size of a tree in other districts three years old.

Nearly all varieties of peaches have been tried, and the Chinese and southern varieties have proven to be the most profitable. However, peaches are not considered commercially.

Pears are being tried out on quite a large scale, one orchard consists of 60 acres and is reported as successful.

This is a natural country for the fig which produces large firm quality fruit.

This county produces more cantaloupes than any one state in the Union. In 1917 there were thirteen thousand acres planted and over five thousand carloads shipped.

Asparagus is one of the products of this valley that brings the greatest returns to the owners of any of the present crops. The season opens about the fifth of February and continues for a couple of months. Early in the season it is not uncommon to receive one dollar and twenty-five cents a pound in the East.

Our commercial berry is the strawberry and they do well, producing a fine fruit and netting the grower a handsome profit. Last season six cars were shipped and it is estimated for 1918 that there will be fourteen carloads.

List of Crops and Estimated Acreage and Production for 1917.

	Per acre	Acre		
Tomatoes, crates	400	480	Cucumbers	20
Peas, tons	3	785	Beans	580
Lettuce, crates	300	815	Strawberries	95
Potatoes, sacks	90	348	Cotton	110,000
Squash, pounds	500	185	Grapefruit (mostly nonbearing)	823
Onions, crates	300	337	Asparagus (85 cars of 670 crates of 12 bunches each)	725
Grapes, crates	300	1,200	Wheat (50 bushels per acre)	2,937
Watermelons, tons	10	350	Oats	265
Cantaloupes, crates	150	12,552	Dates	310
Alfalfa, tons	7	114,491	Figs	210
Apricots, hogs	854	446	Lemons	40
Barley, tons	1	60,658	Olives (nonbearing)	195
Milo maize, ton	1½	106,354	Oranges	265
Hay, tons	2	95,562	Peaches	245
Bees, stands (2,400 tons honey)		2,000	Pears	140

Imperial County corners off the state of California on the southeast. Over 90 per cent of its population is represented in the Imperial Valley, which in 16 years has been reclaimed from a desert waste and developed until the population today is 45,000, where before there was none, and has an actual property valuation of \$90,000,000, where before was worthless. It is sometimes referred to as "Barbara Worth's country," being the locale of a novel of similar name.

IMPERIAL COUNTY SUMMARY.

(Census 1910.)

Number of Farms Classified by Size.		Value of All Farm Property.	
Under 3 acres	51	Total value in 1910	\$23,646,067
3 to 9 acres	46	Total value in 1900	†
10 to 19 acres	56	Per cent increase 1900-1910	†
20 to 49 acres	182	Land in 1910	10,832,600
50 to 99 acres	227	Land in 1900	†
100 to 174 acres	400	Buildings in 1910	764,665
175 to 259 acres	96	Buildings in 1900	†
260 to 499 acres	201	Implements and machinery in 1910	459,585
500 to 999 acres	51	Implements and machinery in 1900	†
1,000 acres and over	10	Domestic animals, poultry and bees in 1910	2,589,207
Total	1,322	Domestic animals, poultry and bees in 1900	†
Total in 1900	†	Domestic Animals on Farms and Ranges.	
Land and Farm Areas.		Cattle*—	
Approximate land, acres	2,616,900	Dairy cows	9,653
Land in farms in 1910	223,662	Other cows	2,728
Land in farms in 1900	†	Yearling heifers	2,560
Improved land in farms in 1910	176,069	Calves	2,772
Improved land in farms in 1900	†	Yearling steers and bulls	1,379
Woodland in farms	1,138	Other steers and bulls	1,817
Other unimproved farms	46,395	Total	*22,741
		Value	*\$865,001

*Organized from San Diego County August 15, 1907.

†Includes animals, age or sex not specified.

IMPERIAL COUNTY SUMMARY—Continued.

Horses—			Honey and wax—		
Mature horses	6,277		Honey produced, pounds.....	514,125	
Yearling colts	580		Wax produced, pounds.....	4,458	
Spring colts	872		Value of honey and wax produced	\$27,124	
Total	7,229		Wool—		
Value	\$798,317		Wool, fleeces shorn.....	12,755	
Mules—			Mohair and goat hair, fleeces shorn	26	
Mature mules	1,588		Value of wool and mohair produced	\$17,067	
Yearling colts	69		Special crops—		
Spring colts	20		Potatoes, acres	60	
Total	1,672		Sweet potatoes, acres.....	9	
Value	\$233,196		All other vegetables, acres.....	3,672	
Asses and burros—			Orchard fruits—		
Number	56		Number bearing trees		
Value	\$1,569		Apples	56	
Swine—			Apriots	1,922	
Mature hogs	45,764		Peaches and nectarines.....	432	
Spring pigs	24,796		Prunes and plums.....	347	
Total	70,562		Total	3,170	
Value	\$503,164		Tropical fruits—		
Sheep—			Number bearing trees		
Rams, ewes and wethers.....	13,786		Figs	606	
Spring lambs	9,553		Lemons	26	
Total	23,339		Oranges	1,410	
Value	\$108,504		Olives	41	
Goats—			Total	2,411	
Number	147		Grapevines—		
Value	\$463		Number in bearing.....	298,813	
Total value all domestic animals	\$2,510,214		Small fruits -		
Poultry and bees—			Blackberries and dewberries, acres	1	
Poultry of all kinds.....	72,252		Nuts—		
Value	\$54,117		Number bearing trees		
Colonies of bees.....	4,741		Almonds	29	
Value	\$24,876		Walnuts	24	
Principal Crops.			Total	53	
			Irrigation.		
Corn	Acres	Bushels	Number of farms irrigated in 1909...	1,250	
Oats	690	14,419	Acres irrigated in 1909.....	190,711	
Wheat	30	372	Acres enterprises were capable of		
Barley	125	2,559	irrigating in 1910.....	242,000	
Kafir corn and milo maize....	36,066	908,916	Acres included in projects.....	375,000	
Potatoes	9,789	213,781	Main ditches, number.....	12	
Hay and forage—	60	3,347	Length, miles	117	
Alfalfa	30,847	72,311	Laterals, number	179	
Other tame and cultivated			Length, miles	890	
grasses	240	210	Cost of irrigation enterprises up to		
Wild, salt, or prairie grasses	55	100	July 1, 1910.....	\$4,955,272	
Grains cut green.....	\$0,995	25,105	Average cost per acre irrigation		
All other hay and forage....	4,927	4,147	enterprises were capable of irrigat-		
Totals	57,064	101,763	ing in 1910.....	20.48	
Poultry products—			Mineral Production in 1916.		
Poultry raised, number.....	84,062		Substance	Amount	Value
Eggs produced, dozen.....	264,826		Gold		\$22,336
Value of poultry and eggs produced	\$135,526		Silver		155
			Stone, miscellaneous		34,834
			Other minerals†		47,006
			Total		\$105,333

†Includes brick, copper, lead, pumice and strontium.

INYO COUNTY.

Date of creation, March 22, 1866.

Land area, 10,019 square miles.	Population-----	1890 3,544	1900 4,377	1910 6,974
County seat, Independence (township).	Population-----	662	820	701
Population per square mile, 0.7.				

	Highest	Lowest	Inches	Inches
Elevation, 3,907 feet.	1916: Temperature...108	-2	Rainfall...12.84	Snow...78.2
	1917: Temperature...102	-1	Rainfall... 2.11	Snow... 6.0

Inyo County lies on the eastern side of the Sierra Nevada Range and adjoins Esmeralda and Nye counties, Nevada. On the extreme western edge of the county are the high peaks of the Sierra, rising to altitudes of 14,000 feet and upward and covered throughout the year with snow. From these come numerous streams, which, descending rapidly, unite to form Owens River, flowing southerly along the base of the range to Owens Lake. To the east of this is a succession of ranges and deep valleys of what is known as the Great Basin type, similar to those in southern Nevada. The most noted among these lowlands between the mountains is Death Valley, the bottom of which is reported to be upward of 350 feet below sea level. Borax and similar substances are obtained in these depressions, but beyond these products the desert area has little present value.

Inyo, the second largest county, has the most diversified topography in the state, claiming as it does Mount Whitney, the highest elevation, and Death Valley, the lowest depression. The Sierra, which forms its western border, here attain their greatest altitude, there being many towering peaks scarcely inferior to Whitney itself.

All the agricultural land is contained in Owens Valley. This valley is about 100 miles long; at its northern end it is about 15 miles wide, narrowing to 2 miles half way down its length, where a spur of the Sierra almost divides it, and south of that broadening to an average of 6 to 8 miles.

The soil of Owens Valley is especially fertile. Grains and garden produce of all kinds are grown to perfection.

The county is one of the most interesting geographically, as well as from a mining standpoint, of any similar area in the West. Inyo County contains 10,019 square miles, and an estimated population of about 7,500. It is noted because of the fact that within its borders are located both the highest and the lowest points in the United States, Mt. Whitney having an elevation of 14,522 feet above sea level, and almost within sight of this mountain is a point in Death Valley which is 290 feet below sea level.

INYO COUNTY SUMMARY.

(Census 1910.)

Number of Farms Classified by Size.		Asses and burros—	
Under 3 acres	2	Number	309
3 to 9 acres	28	Value	\$5,845
10 to 19 acres	28	Swine—	
20 to 49 acres	55	Mature hogs	1,795
50 to 99 acres	75	Spring pigs	1,560
100 to 174 acres	113	Total	3,355
175 to 259 acres	41	Value	\$21,631
260 to 499 acres	54	Sheep—	
500 to 999 acres	22	Rams, ewes, and wethers	17,240
1,000 acres and over	20	Spring lambs	28,106
Total	438	Total	45,346
Total in 1900	424	Value	\$159,519
Land and Farm Areas.		Goats—	
Approximate land, acres	6,412,100	Number	2,946
Land in farms in 1910	116,142	Value	\$6,596
Land in farms in 1900	141,059	Total value: all domestic animals	\$1,104,481
Improved land in farms in 1910	38,698	Poultry and bees—	
Improved land in farms in 1900	43,740	Poultry of all kinds	30,133
Woodland in farm	1,631	Value	\$20,590
Other unimproved land	60,813	Colonies of bees	5,268
Value of All Farm Property.		Value	\$35,936
Total value in 1910	\$7,112,903	Principal Crops.	
Total value in 1900	2,571,629		
Per cent increase 1900-1910	176.6		
Land in 1910	5,210,586		
Land in 1900	1,584,760		
Buildings in 1910	558,740		
Buildings in 1900	317,060		
Implements and machinery in 1910	189,810		
Implements and machinery in 1900	96,500		
Domestic animals, poultry and bees in 1910	1,153,767		
Domestic animals, poultry and bees in 1900	574,229		
Domestic Animals on Farms and Ranges.			
Cattle—			
Dairy cows	2,267		
Other cows	8,970		
Yearling heifers	2,583		
Calves	2,255		
Yearling steers and bulls	2,445		
Other steers and bulls	1,788		
Total	20,308		
Value	\$423,863		
Horses—			
Mature horses	7,074		
Yearling colts	555		
Spring colts	403		
Total	5,032		
Value	\$453,277		
Mules—			
Mature mules	249		
Yearling colts	55		
Spring colts	33		
Total	337		
Value	\$31,900		

INYO COUNTY SUMMARY—Continued.

		Irrigation.		
		Number of farms irrigated in 1900.....	408	
		Acres irrigated in 1900.....	65,168	
		Acreage enterprises were capable of irrigating in 1910.....	71,815	
		Acreage included in projects.....	92,319	
		Main ditches, number.....	184	
		Length, miles.....	396	
		Laterals, number.....	326	
		Length, miles.....	168	
		Flowing wells, number.....	10	
		Pumped wells, number.....	1	
		Cost of irrigation enterprises up to July 1, 1910.....	\$962,006	
		Average cost per acre irrigation enterprises were capable of irrigating in 1910.....	\$13.41	
Mineral Production in 1916.				
		Substance	Amount	Value
		Copper, pounds.....	274,032	\$37,412
		Dolomite, tons.....	3,596	14,700
		Gold.....		181,722
		Lead, pounds.....	11,185,321	771,787
		Silver.....		252,441
		Soda, tons.....	10,593	264,825
		Stone, miscellaneous.....		23,040
		Talc, tons.....	658	4,606
		Zinc, pounds.....	5,768,708	771,096
		Other minerals*.....		2,317,897
		Total.....		\$4,600,096

		Number bearing trees	
Orchard fruits—			
Apples.....		19,611	
Apricots.....		342	
Cherries.....		539	
Peaches and nectarines.....		4,602	
Pears.....		2,698	
Prunes and plums.....		2,349	
Total.....		30,164	
Tropical fruits—			
Figs.....		14	
Grapevines—			
Number in bearing.....		39,478	
Small fruits—			
Strawberries, acres.....		5	
Blackberries and dewberries, acres.....		8	
All others, acres.....		8	
Total.....		21	
Nuts—			
Almonds.....		28	
Pecans.....		9	
Walnuts.....		35	
Total.....		72	

*Includes antimony, borax, gypsum, marble, molybdenum, salt, and tungsten.

KERN COUNTY.

Date of creation, April 2, 1866.

	1880	1900	1910	1911 (estimated)
Land area, 8,003 square miles.	Population.. 9,808	16,480	37,715	-----
County seat, *Bakersfield (city).	Population.. 2,626	4,836	12,727	16,571
Population per square mile, 4.7.				
	Highest	Lowest	Inches	Inches
Elevation, 404 feet.	1916: Temperature...110	24	Rainfall... 7.96	Snow... 0
	1917: Temperature...110	25	Rainfall... 3.02	Snow... 0

Kern County, situated at the extreme southern end of the San Joaquin Valley, its eastern boundary extending on to the Mojave Desert over the extreme southerly end of the Sierra Nevada Mountains, is the third largest county in the state.

At Randsburg, on the eastern border, is one of the largest gold mines on this coast, and the county around Randsburg has many smaller mines.

Along the southern border where the line crosses the San Emidio Mountains are large deposits of iron ore and antimony, which are yet undeveloped. Along the western side of the county are the Sunset, Midway, McKittrick and Lost Hills oil fields, lying along the eastern base of the Coast Range Mountains.

In the northern part of the county, and surrounding the town of Delano, is a large body of good land. Rice has been successfully grown in the county for several years.

In the northeastern part is the mining town of Kernville, surrounded by mines, and near it on the south fork of the Kern River is the South Fork Valley, where numerous stockmen have their alfalfa fields that furnish feed to the stock that pasture in the high Sierra in the summer time.

In the center, and surrounding the town of Bakersfield, the county seat, lie thousands of acres of fertile land that are irrigated by Kern River, and which are mostly used to raise stock and alfalfa, but large quantities of fruit, including oranges, are also raised in the county. The acreage in apricots, peaches, prunes, pears, olives, and oranges has increased very considerably in the last five years.

Kern County is a long way ahead of all others in the value of minerals produced, amounting in 1916 to \$37,826,000. The greater part of this sum is derived from the extensive oil fields.

(Information supplied by the County Horticultural Commissioner.)

In the northern part of the county surrounding the towns of Delano and McFarland, is a large body of good land now being developed into a rich farming and fruit growing section. Rice has been successfully grown at Wasco and that vicinity for several years. In 1917, 1,280 acres were planted, and a new modern mill was installed at Wasco.

Cotton will be extensively planted during the coming season in a number of sections. Arvin will have the largest acreage, and Egyptian long staple will be the only variety grown, as in Fresno and adjoining counties and a cotton gin will be established at Bakersfield.

In the oil fields the development work is continuous. Lost Hills is being developed, and the discoveries there indicate that the petroleum-bearing territory is continuous from Sunset to the north line of the county.

*Kern City annexed to Bakersfield in 1909.

KERN COUNTY SUMMARY.

(Census 1910.)

Number of Farms Classified by Size.			
Under 3 acres	11	Swine—	
3 to 9 acres	46	Mature hogs	13,376
10 to 19 acres	57	Spring pigs	7,137
20 to 49 acres	320	Total	20,513
50 to 99 acres	173	Value	\$167,439
100 to 174 acres	222		
175 to 259 acres	55	Sheep—	
260 to 499 acres	116	Rams, ewes, and wethers	19,801
500 to 999 acres	82	Spring lambs	10,516
1,000 acres and over	85	Total	30,317
Total	1,167	Value	\$114,137
Total in 1900	1,098	Goats—	
		Number	980
		Value	\$3,305
Land and Farm Areas.		Total value all domestic animals	\$4,509,068
Approximate land, acres	5,121,920		
Land in farms in 1910	1,408,250	Poultry and bees—	
Land in farms in 1900	1,571,106	Poultry of all kinds	75,900
Improved land in farms in 1910	315,387	Value	\$51,438
Improved land in farms in 1900	324,031	Colonies of bees	4,501
Woodland in farms	235,014	Value	\$16,168
Other unimproved land	353,949		
Value of All Farm Property.		Principal Crops.	
Total value in 1910	\$30,405,013		
Total value in 1900	14,246,125	Corn	Acres 466 Bushels 7,132
Per cent increase 1900-1910	113.4	Oats	82 770
Land in 1910	22,963,202	Wheat	12,924 139,375
Land in 1900	10,404,540	Barley	22,492 517,029
Buildings in 1910	1,252,139	Kafir corn and milo maize	2,813 45,328
Buildings in 1900	664,120	Dry edible beans	26 643
Implements and machinery in 1910	614,023	Potatoes	339 51,066
Implements and machinery in 1900	347,640		
Domestic animals, poultry, and bees		Hay and forage—	Acres Tons
in 1910	4,576,644	Alfalfa	23,600 73,259
Domestic animals, poultry, and bees		Other tame and cultivated	
in 1900	2,820,825	grasses	12 13
		Wild, salt, or prairie grasses	148 105
		Grains cut green	30,069 35,441
		All other hay and forage	5,126 4,173
Domestic Animals on Farms and Ranges.		Totals	53,955 112,995
Cattle—		Poultry products—	
Dairy cows	6,917	Poultry raised, number	80,520
Other cows	33,101	Eggs produced, dozen	394,130
Yearling heifers	8,441	Value poultry and eggs produced	\$148,062
Calves	7,372		
Yearling steers and bulls	6,459	Honey and wax—	
Other steers and bulls	24,271	Honey produced, pounds	204,920
Total	118,820	Wax produced, pounds	2,332
Value	\$3,051,967	Value of honey and wax produced	\$12,159
Horses—		Wool—	
Mature horses	8,670	Wool, fleeces shorn	24,177
Yearling colts	267	Mohair and goat hair, fleeces shorn	355
Spring colts	530	Value wool and mohair produced	\$26,540
Total	10,347	Special crops—	
Value	\$1,013,562	Potatoes, acres	339
Mules—		Sweet potatoes, acres	31
Mature mules	1,099	All other vegetables, acres	539
Yearling colts	108		
Spring colts	46	Orchard fruits—	Number
Total	1,248	bearing trees	
Value	\$146,095	Apples	7,725
Asses and burros—		Apricots	33,573
Number	130	Cherries	163
Value	\$13,543	Peaches and nectarines	35,149
		Pears	1,057
		Prunes and plums	53,075
		Total	136,068

*Includes animals, age and sex not specified.

KERN COUNTY SUMMARY—Continued.

Principal Crops—Continued.		Irrigation.	
Tropical fruits—	Number bearing trees	Number of farms irrigated in 1909.....	878
Figs	1,475	Acres irrigated in 1909.....	190,094
Lemons	54	Acreage enterprises were capable of irrigating in 1910.....	217,418
Oranges	80,940	Acres included in projects.....	402,808
Pomelos	16	Main ditches, number.....	178
Olives	898	Length, miles.....	441
Total	82,888	Laterals, number.....	118
Grapevines—		Length, miles.....	267
Number in bearing.....	419,582	Flowing wells, number.....	25
Small fruits—		Pumped wells, number.....	140
Strawberries, acres.....	2	Cost of irrigation enterprises up to July 1, 1910.....	\$1,788,635
Blackberries and dewberries, acres.....	20	Average cost per acre irrigation enterprises were capable of irrigating in 1910.....	8.22
All others, acres.....	6		
Total, acres.....	84	Mineral Production in 1916.	
Nuts—	Number bearing trees	Substance	Amount Value
Almonds	3,101	Antimony, tons.....	145 \$5,880
Pecans	563	Brick, M.....	2,177 22,824
Walnuts	127	Copper, pounds.....	24,754 6,089
Total	3,819	Gold	747,042
		Lead, pounds.....	24,274 1,675
		Lime and limestone.....	30,047
		Natural gas, M cu. ft.....	16,679,668 1,379,033
		Petroleum, barrels.....	54,120,509 24,691,248
		Silica, tons.....	4,100 23,700
		Silver	8,745
		Stone, miscellaneous.....	63,723
		Tungsten concentrates, tons.....	193 482,387
		Other minerals†.....	363,516
		Total	\$87,526,907

†Includes cement, clay, feldspar, fuller's earth, magnesite, quicksilver, and salt.

KINGS COUNTY.

Date of creation, March 22, 1893; organized from part of Tulare County; extended in 1909 by annexation of part of Fresno County.*

	1890	1900	1910	1915 (estimated)
Land area, 1,159 square miles.	Population--	9,871	16,230	-----
County seat, Hanford (city).	Population--	2,929	4,829	6,250
Population per square mile, 14.0.				
	Highest	Lowest	Inches	Inches
Elevation, 249 feet.	1916: Temperature---108	20	Rainfall---11.55	Snow-- 0
	1917: Temperature---110	20	Rainfall--- 4.43	Snow-- 0

In the very heart of the great fertile valley of the San Joaquin lies Kings County, one of the smallest, one of the youngest, but one of the most fertile counties in the state.

(Information supplied by the County Horticultural Commissioner.)

In its variety of products, its extensive as well as its intensive farming methods, Kings County, although one of the smallest is one of the richest counties in the state.

In the northern part of the county raisin grapes, peaches, apricots and prunes thrive best. The bulk of these crops is dried or canned, the product being handled by conveniently located canneries and packing houses. These fruits alone net the growers well into the millions of dollars annually.

Alfalfa growing, hogs and dairying in Kings County make a combination which is hard to beat, as the county is recognized by the agricultural world as the home of pure bred live stock. Creameries and cheese factories are so located as to be convenient to all dairying sections.

On the shores of Tulare Lake a vast empire has been reclaimed by the building of levees, and here, protected from the flood waters, thousands of acres are farmed to wheat and barley by the use of modern machinery.

No slight contribution to the ease and low cost of marketing farm products is the fine new highway system which connects all the agricultural communities of the county.

Grain sorghums, sugar beets, honey, and many other products of the soil contribute largely to the wealth of this rich little San Joaquin Valley county. In the coming season about 1,200 acres of Egyptian long staple cotton is being planted.

Kings River supplies most of the water for irrigation. However, in 1872 a plan for using the waters of the Kaweah River or Cross Creek was put into practical operation and since that time this stream though smaller than the Kings River, has been doing its full share. The principal irrigation companies supplying water at the present time are the Peoples Ditch Company, the Last Chance Ditch Company, the Lemoore Canal and Irrigation Company and the Lakeside Ditch Company. There are also several smaller ditches in operation.

*202 miles of Fresno and 96 miles of Tulare counties were annexed in 1909.

KINGS COUNTY SUMMARY.

(Census 1910.)

Number of Farms Classified by Size.		Asses and burros—	
Under 3 acres	7	Number	23
3 to 9 acres	69	Value	\$10,077
10 to 19 acres	159	Swine—	
20 to 49 acres	648	Mature hogs	22,775
50 to 99 acres	877	Spring pigs	17,858
100 to 174 acres	287	Total	40,633
175 to 259 acres	77	Value	\$295,301
260 to 499 acres	133		
500 to 999 acres	42	Sheep—	
1,000 acres and over	43	Rams, ewes and wethers	40,483
Total	1,837	Spring lambs	21,891
Total in 1900	932	Total	62,374
		Value	\$233,005
Land and Farm Areas.		Goats—	
Approximate land, acres	741,760	Number	507
Land in farms in 1910	373,823	Value	\$1,912
Land in farms in 1900	387,505	Total value all domestic animals	\$4,426,411
Improved land in farms in 1910	196,569	Poultry and bees—	
Improved land in farms in 1900	262,148	Poultry of all kinds	102,747
Woodland in farms	6,724	Value	\$59,708
Other unimproved land	170,530	Colonies of bees	4,690
		Value	\$17,630
		Principal Crops.	
Value of All Farm Property.		Corn	Acres 2,374 Bushels 42,688
Total value in 1910	\$33,312,292	Oats	109 4,490
Total value in 1900	5,921,907	Wheat	8,684 141,978
Land in 1910	26,007,591	Barley	19,287 402,432
Land in 1900	3,420,410	Kafir corn and milo maize	3,981 95,010
Buildings in 1910	2,145,975	Dry edible beans	21 576
Buildings in 1900	811,920	Potatoes	194 17,658
Implements and machinery in 1910	654,971	Hay and forage—	Acres Tons
Implements and machinery in 1900	348,330	Clover alone	13 51
Domestic animals, poultry and bees		Alfalfa	38,778 123,112
in 1910	4,503,755	Other tame and cultivated	
Domestic animals, poultry and bees		grasses	2,023 2,025
in 1900	1,341,247	Wild, salt, or prairie grasses	833 734
		Grains cut green	17,629 28,629
		All other hay and forage	473 3,755
Domestic Animals on Farms and Ranges.		Totals	57,749 158,306
Cattle—		Poultry products—	
Dairy cows	18,593	Poultry raised, number	153,839
Other cows	21,655	Eggs produced, dozen	687,052
Yearling heifers	7,281	Value poultry and eggs produced	248,495
Calves	8,798	Honey and wax—	
Yearling steers and bulls	3,745	Honey produced, pounds	238,791
Other steers and bulls	14,918	Wax produced, pounds	2,148
Total	74,975	Value of honey and wax produced	\$12,028
Value	\$2,481,281	Wool—	
Horses—		Wool, fleeces shorn	73,393
Mature horses	9,417	Mohair and goat hair, fleeces shorn	361
Yearling colts	1,174	Value of wool and mohair produced	\$58,839
Spring colts	882		
Total	11,473		
Value	\$1,256,415		
Mules—			
Mature mules	855		
Yearling colts	142		
Spring colts	72		
Total	1,069		
Value	\$148,430		

KINGS COUNTY SUMMARY—Continued.

Principal Crops—Continued.

Special crops—	
Potatoes, acres	194
Sweet potatoes, acres	19
All other vegetables, acres	674
Sugar beets, acres	504

	Number
Orchard fruits—	bearing trees
Apples	4,106
Apricots	124,007
Cherries	11
Peaches and nectarines	777,007
Pears	4,379
Prunes and plums	132,192
Total	1,048,506

	Number
Tropical fruits—	bearing trees
Figs	391
Oranges	24
Olives	5
Total	425

Grapevines—	
Number in bearing	4,538,732

Small fruits—	
Strawberries, acres	15
Blackberries and dewberries, acres	13
All others, acres	8
Total	31

	Number
Nuts -	bearing trees
Almonds	1,721
Pecans	2
Walnuts	24
Total	1,747

Irrigation.

Number of farms irrigated in 1909...	1,126
Acres irrigated in 1909	190,949
Acres enterprises were capable of irrigating in 1910	290,523
Acres included in projects	310,523
M: in ditches, number	27
Length, miles	137
Laterals, number	51
Length, miles	159
Flowing wells, number	75
Pumped wells, number	20
Cost of irrigation enterprises up to July 1, 1910	\$687,381
Average cost per acre irrigation enterprises were capable of irrigating in 1910	\$2.37

Mineral Production in 1916.

Substance	Amount	Value
Natural gas, M cu. ft.	258	\$908
Other minerals		26,180
Total		\$26,788

LAKE COUNTY.

Date of creation, May 20, 1861.

	1890	1900	1910	1915 (estimated)
Land area, 1,278 square miles.	Population.. 7,101	6,017	5,526	-----
County seat, Lakeport (town).	Population.. 991	726	870	1,100
Population per square mile, 4.3.				

Sulphur Banks (Station):	Highest	Lowest	Inches	Inches
Elevation, 1,350 feet.	1916: Temperature...105	12	Rainfall...23.72	Snow...25.3
	1917: Temperature...108	23	Rainfall...11.83	Snow... T

The county is located in the heart of the Coast Range, about 100 miles north of San Francisco, and is about 75 miles long and 25 miles wide. Mount St. Helena guards the southern extremity. Clear Lake is a splendid sheet of fresh water 25 miles long and from 2 to 10 miles broad, with the lake surface at an elevation of 1,350 feet above sea level. It is stocked with a large quantity of fish. Clear Lake is the pride of Lake County, as well as the source of its name.

Although classed as mountainous, Lake County has a number of very fertile valleys, some of them being of large area. The acreage in farm crops is small compared with most other counties, but a considerable quantity of peas and beans are raised for canning purposes. Artesian water is obtainable in profuse quantities.

In 1917, there were about 5,000 acres in orchards and vineyards, about 600 acres being in Bartlett pears, and 500 acres in prunes. The fruit shipped amounted to 1,240 tons of dried prunes, 885 tons of dried Bartlett pears, and 425 tons of green pears.

The rocky hillsides furnish pasturage for flocks of Angora goats. Large bodies of sugar and yellow pine, fir, cedar, and oak give employment to several sawmills and furnish the home market a good quality of lumber.

The minerals have heretofore been represented principally by quicksilver. Besides quicksilver, immense quantities of mineral water have been bottled at the many mineral springs and shipped to all parts of the country. Lake County has fifty-six mineral springs, or more than any other county in the state.

LAKE COUNTY SUMMARY.

(Census 1910.)

Number of Farms Classified by Size.		Value of All Farm Property.	
Under 3 acres	1	Total value in 1910.....	\$6,271,615
3 to 9 acres	10	Total value in 1900.....	3,495,090
10 to 19 acres.....	38	Per cent increase 1900-1910.....	79.4
20 to 49 acres.....	85	Land in 1910.....	\$4,792,490
50 to 99 acres.....	80	Land in 1900.....	2,419,290
100 to 174 acres.....	144	Buildings in 1910.....	782,735
175 to 259 acres.....	60	Buildings in 1900.....	524,180
260 to 499 acres.....	84	Implements and machinery in 1910...	207,211
500 to 999 acres.....	58	Implements and machinery in 1900...	111,420
1,000 acres and over.....	48	Domestic animals, poultry and bees	
		in 1910.....	489,180
Total	608	Domestic animals, poultry and bees	
Total in 1900.....	723	in 1900.....	440,210
Land and Farm Areas.		Domestic Animals on Farms and Ranges.	
Approximate land, acres.....	817,920	Cattle—	
Land in farms in 1910.....	217,464	Dairy cows	1,457
Land in farms in 1900.....	212,176	Other cows	2,113
Improved land in farms in 1910.....	42,768	Yearling heifers	821
Improved land in farms in 1900.....	41,414	Calves	1,123
Woodland in farms.....	71,888	Yearling steers and bulls.....	574
Other unimproved land.....	103,806	Other steers and bulls.....	1,296
		Total	7,414
		Value	\$148,781

LAKE COUNTY SUMMARY—Continued.

Domestic Animals on Farms and Ranges—Continued.		
Horses—		
Mature horses	2,172	
Yearling colts	216	
Spring colts	104	
Total	2,492	
Value	\$210,382	
Mules—		
Mature mules	182	
Yearling colts	45	
Spring colts	36	
Total	263	
Value	\$22,015	
Asses and burros—		
Number	10	
Value	\$2,730	
Swine—		
Mature hogs	5,301	
Spring pigs	2,787	
Total	8,088	
Value	\$30,230	
Sheep—		
Rams, ewes and wethers	7,436	
Spring lambs	3,511	
Total	10,947	
Value	\$37,167	
Goats—		
Number	9,018	
Value	\$21,114	
Total value all domestic animals	\$471,423	
Poultry and bees—		
Poultry of all kinds	27,435	
Value	\$17,086	
Colonies of bees	276	
Value	\$675	

Principal Crops.

	Acres	Bushels
Corn	961	26,317
Oats	843	19,914
Wheat	2,568	46,131
Barley	2,825	54,758
Potatoes	182	21,773
Hay and forage—		
Timothy alone	50	60
Timothy and clover mixed	104	180
Clover alone	830	452
Alfalfa	2,795	7,290
Other tame and cultivated grasses	385	391
Wild, salt, or prairie grasses	1,152	1,316
Grains cut green	7,810	9,351
All other hay and forage	27	79
Totals	12,653	19,098
Poultry products—		
Poultry raised, number	37,976	
Eggs produced, dozen	135,001	
Value poultry and eggs produced	\$66,581	
Honey and wax—		
Honey produced, pounds	5,105	
Wax produced, pounds	43	
Value of honey and wax produced	\$455	

Wool—	
Wool, fleeces shorn	10,373
Mohair and goat hair, fleeces shorn	6,608
Value wool and mohair produced	\$12,922

Special crops—	
Potatoes, acres	182
All other vegetables, acres	353

	Number bearing trees
Orchard fruits—	
Apples	23,354
Apricots	1,468
Cherries	590
Peaches and nectarines	9,238
Pears	39,076
Prunes and plums	47,344
Total	120,087

	Number bearing trees
Tropical fruits—	
Figs	1,062
Lemons	8
Oranges	72
Olives	3,198
Total	4,340

Grapevines—	
Number in bearing	296,752

Small fruits—	
Strawberries, acres	6
Blackberries and dewberries, acres	15
All others, acres	4
Total	25

	Number bearing trees
Nuts—	
Almonds	3,281
Pecans	6
Walnuts	564
Total	3,851

Irrigation.

Number of farms irrigated in 1909	48
Acres irrigated in 1909	582
Acres enterprises were capable of irrigating in 1910	823
Acres included in projects	1,263
Main ditches, number	44
Length, miles	26
Laterals, number	21
Length, miles	2
Flowing wells, number	1
Pumped wells, number	3
Cost of irrigation enterprises up to July 1, 1910	\$12,124
Average cost per acre irrigation enterprises were capable of irrigating in 1910	14.64

Mineral Production in 1916.

Substance	Amount	Value
Chromite, tons	871	\$15,070
Mineral water, gallons	195,650	54,160
Quicksilver, flasks	1,139	106,496
Stone, miscellaneous		4,500
Other minerals		770
Total		\$180,996

LASSEN COUNTY.

Date of creation, April 1, 1864.

	1890	1900	1910	1915 (estimated)
Land area, 4,531 square miles.				
County seat, Susanville (town).	Population... 4,239	4,511	4,802	-----
Population per square mile, 1.1.	-----	-----	688	1,000

Madeline (Station):	Highest	Lowest	Inches	Inches
Elevation, 5,276 feet. 1916: Temperature...	91	-23	Rainfall... 18.60	Snow... 150.0
Susanville, 4,175 feet. 1917: Temperature...	102	-17	Rainfall... 9.82	Snow... T

Lassen County lies in the northeastern part of California along the Nevada line. It is traversed from south to north by the Nevada-California-Oregon Railway (narrow gauge), which connects at Reno, Nevada, with the Southern Pacific system. Susanville, the county seat, is in Honey Lake Valley, a little south of the center of the county. Lassen embraces large areas, comprising rich valley lands, suited to agriculture; rolling hills and uplands, affording splendid range for stock, and mountain tablelands covered with timber.

The principal present industries are farming and stock raising.

The altitude of the largest, most fertile, and most productive valleys, such as Honey Lake Valley, Big Valley, and Long Valley, is a little over 4,000 feet. Other large valleys, like Madeline Plains, Willow Creek Valley, and Secret Valley, are in the neighborhood of 5,000 feet above sea level. While the high valleys are not as well adapted to general farming as the lower ones, they are quite productive, and well suited to the stock-raising business. The climate generally is similar to that of the northeastern states, so far as range of temperature is concerned, but the summer season is quite dry, making irrigation necessary as a rule. Of farm products, alfalfa is probably the most important, though native grasses, timothy, and redbud are extensively raised.

Good hay and grass and pure cold water make the county an ideal one for dairying. There are a number of creameries in the county.

LASSEN COUNTY SUMMARY.

(Census 1910.)

Number of Farms Classified by Size.		Value of All Farm Property.	
3 to 9 acres	9	Total value in 1910.....	\$9,376,809
10 to 19 acres.....	4	Total value in 1900.....	5,365,615
20 to 49 acres.....	12	Per cent increase 1900-1910.....	74.8
50 to 99 acres.....	32	Land in 1910.....	6,331,532
100 to 174 acres.....	117	Land in 1900.....	2,949,510
175 to 259 acres.....	51	Buildings in 1910.....	765,400
260 to 499 acres.....	130	Buildings in 1900.....	708,010
500 to 999 acres.....	84	Implements and machinery in 1910..	289,287
1,000 acres and over.....	63	Implements and machinery in 1900..	255,220
Total	502	Domestic animals, poultry and bees	
Total in 1900.....	555	in 1910.....	1,990,230
		Domestic animals, poultry and bees	
		in 1900.....	1,452,875
		Domestic Animals on Farms and Ranges.	
		Cattle—	
		Dairy cows	2,590
		Other cows	18,444
		Yearling heifers	5,975
		Calves	4,906
		Yearling steers and bulls.....	5,456
		Other steers and bulls.....	6,161
		Total	43,532
		Value	\$871,941
		Land and Farm Areas.	
Approximate land, acres.....	2,890,840		
Land in farms in 1910.....	295,728		
Land in farms in 1900.....	381,109		
Improved land in farms in 1910.....	122,057		
Improved land in farms in 1900.....	133,266		
Woodland in farms.....	27,688		
Other unimproved land.....	145,983		

LASSEN COUNTY SUMMARY—Continued.

Domestic Animals on Farms and Ranges—Continued.			Poultry products—	
Horses—			Poultry raised, number.....	28,907
Mature horses	7,548		Eggs produced, dozen.....	106,897
Yearling colts	1,416		Value of poultry and eggs produced	\$161,289
Spring colts	561			
Total	9,515		Honey and wax—	
Value	\$702,420		Honey produced, pounds.....	5,642
			Wax produced, pounds.....	5
			Value of honey and wax produced	643
Mules—			Wool—	
Mature mules	414		Wool, fleeces shorn.....	36,768
Yearling colts	185		Mohair and goat hair, fleeces shorn	2,088
Spring colts	103		Value wool and mohair produced..	\$55,154
Total	702		Special crops—	
Value	\$90,681		Potatoes, acres	259
			Sugar beets, acres.....	2
Asses and burros—			All other vegetables, acres.....	184
Number	119			
Value	\$20,220		Orchard fruits—	Number
Swine—				bearing trees
Mature hogs	3,079		Apples	12,679
Spring pigs	1,955		Apricots	70
Total	5,034		Cherries	439
Value	\$30,513		Peaches and nectarines.....	1,456
			Pears	632
Sheep—			Prunee and plums.....	2,223
Rams, ewes and wethers.....	42,490		Total	17,511
Spring lambs	30,235		Grapevines—	
Total	72,725		Number in bearing	31
Value	\$291,592		Small fruits—	
Goats—			Strawberries, acres	3
Number	586		Blackberries and dewberries, acres	2
Value	\$1,832		All others, acres.....	15
Total value all domestic animals	\$1,079,199		Total	20
			Nuts—	Number
Poultry and bees—				bearing trees
Poultry of all kinds.....	19,297		Almonds	8
Value	\$9,957		Walnuts	8
Colonies of bees.....	298		Total	16
Value	\$1,074			
			Irrigation.	
Principal Crops.			Number of farms irrigated in 1909...	355
	Acres	Bushels	Acres irrigated in 1909.....	77,079
Corn	4	93	Acreage enterprises were capable of	
Oats	977	25,647	irrigating in 1910.....	89,815
Wheat	9,968	153,863	Acreage included in projects.....	149,530
Barley	3,244	63,471	Main ditches, number.....	295
Potatoes	259	35,703	Length, miles	368
			Laterals, number	263
			Length, miles	116
Hay and forage—	Acres	Tons	Cost of irrigation enterprises up to	
Timothy alone	296	649	July 1, 1910.....	\$884,965
Timothy and clover mixed..	9,475	13,239	Average cost per acre irrigation	
Alfalfa	11,709	27,452	enterprises were capable of irrigat-	
Other tame and cultivated			ing in 1910.....	9.85
grasses	1,723	2,836		
Wild, salt, or prairie grasses	36,879	45,016	Mineral Production in 1916.	
Grains cut green.....	2,677	3,442	Substance	Value
Total	62,758	92,634	Stone, miscellaneous	\$9,725
			Number of mineral springs.....	19

LOS ANGELES COUNTY.

Date of creation, February 18, 1850.

	1890	1900	1910	1916 (estimated)
Land area, 4,067 square miles.	Population...101,454	170,298	504,131	-----
County seat, Los Angeles.	Population... 50,395	102,479	319,198	503,812
Population per square mile, 124.0.				

	Highest	Lowest	Inches	Inches
Elevation, 293 feet.	1916: Temperature... 96	36	Rainfall...23.29	Snow... 0
	1917: Temperature...105	38	Rainfall... 8.45	Snow... 0

In wealth, population, and resources Los Angeles is the most important county in southern California. There are two rivers in the county, the Los Angeles and the San Gabriel. During a large part of the year these are dry beds of sand, what little water they contain finding its way through the porous sand to the bedrock. In the winter they are liable to flood. The Los Angeles River rises in the western part of the San Fernando Valley, about 12 miles northwest of the city.

Los Angeles County embraces within its limits a great variety of scenery and climate. Within its territory may be found the climate and scenery of almost every part of the state, from the cool and breezy seashore to the warm inland plains and bracing mountain tops. Of the area of the county, about four-fifths is capable of cultivation, the remainder being mountainous. The shore line is 85 miles in length. Nine-tenths of the population is within thirty miles of the ocean.

The chief industry is horticulture, the list of products including everything that can be grown in the state. The area of land devoted to horticultural purposes is being rapidly extended as the large tracts are subdivided and improved.

One of the most important enterprises for Los Angeles is the big breakwater built by the federal government at San Pedro. Other shipping points of the county are Port Los Angeles, near Santa Monica, Redondo and Long Beach.

The San Gabriel Valley, a choice section of Los Angeles County, has the Sierra Madre Range on the north. The mountains are grand and precipitous, enclosing the valley like a wall. This valley is the best known of any portion of southern California.

The valley contains 100 square miles of territory. The San Gabriel contains some of the choicest fruit lands in southern California, and is largely devoted to the raising of oranges and lemons, as well as deciduous fruits.

Pasadena, a beautiful city of 39,000 population, is located at the foot of the Sierra Madre Range, about seven miles from Los Angeles. Within twenty years Pasadena has grown from a sheep pasture to a city of beautiful homes.

Ostriches are raised for their plumes. There is a large ostrich farm at South Pasadena.[†]

San Pedro is the headquarters of the tuna industry, which was only established a few years ago, but the pack has steadily increased. In 1911, 42,000 cases were packed; in 1913, 115,000; in 1914, 325,000 cases; and in 1917, 560,000 cases.

[†]For further information regarding ostriches, see pages 62-63.

Adjoining San Gabriel Valley on the east is Pomona Valley. Irrigation is cheaply supplied to this section from the San Antonio River. The soil and climate are particularly adapted to the culture of citrus fruits. It contains a number of flourishing towns, the chief of which is Pomona, one of the most thriving cities in southern California.

The development of the horticultural industry during the past few years has been remarkable. The most important horticultural product is the orange. Besides the orange and lemon, the principal fruits raised are the almond, fig, olive, prune, apricot, walnut, peach, pear and berries. Deciduous fruits are shipped fresh, canned, dried and crystallized.

(Information supplied by the Los Angeles Chamber of Commerce.)

Acreage of principal crops in 1917:

	Acres		
Citrus fruit	60,768	Onions	810
Berries	5,000	Tomatoes	4,700
Walnuts (60 per cent bearing)	24,100	Melons	680
Beans	51,247	Hay, grain, etc.	87,625
Potatoes	11,000	Cabbage, etc.	1,806
Beets	36,592	Celery	3,245
Corn	7,202	Lettuce	3,287

LOS ANGELES COUNTY SUMMARY.

(Census 1910.)

Number of Farms Classified by Size.		Domestic Animals on Farms and Ranges.	
Under 3 acres	438	Cattle—	
3 to 9 acres	2,125	Dairy cows	20,534
10 to 19 acres	1,820	Other cows	8,027
20 to 49 acres	1,709	Yearling heifers	5,561
50 to 99 acres	698	Calves	6,211
100 to 174 acres	581	Yearling steers and bulls	1,666
175 to 259 acres	192	Other steers and bulls	1,106
260 to 499 acres	207		
500 to 999 acres	114	Total	43,065
1,000 acres and over	85	Value	\$1,473,509
Total	7,919	Horses—	
Total in 1900	6,577	Mature horses	20,375
		Yearling colts	1,876
		Spring colts	673
		Total	23,424
		Value	\$2,479,207
		Mules—	
		Mature mules	2,459
		Yearling colts	76
		Spring colts	35
		Total	2,570
		Value	\$390,200
		Asses and burros—	
		Number	84
		Value	\$3,808
		Swine—	
		Mature hogs	18,418
		Spring pigs	10,524
		Total	28,942
		Value	\$230,390

*Including Belgian hares valued at \$525.

LOS ANGELES COUNTY SUMMARY—Continued.

Domestic Animals on Farms and Ranges—Continued.				
Sheep—			Orchard fruits—	
Rams, ewes, and wethers.....	22,261		Apples.....	Number bearing trees 101,438
Spring lambs.....	8,830		Apricots.....	122,799
			Cherries.....	795
Total.....	31,091		Peaches and nectarines.....	160,197
Value.....	\$136,536		Pears.....	16,149
			Prunes and plums.....	43,592
			Total.....	446,868
Goats—			Tropical fruits—	
Number.....	8,238		Figs.....	Number bearing trees 15,738
Value.....	\$30,639		Lemons.....	219,149
			Oranges.....	1,674,665
Total value all domestic animals.....	\$4,734,487		Pomelos.....	6,853
			Olives.....	84,984
			Total.....	1,994,403
Poultry and bees—			Grapevines—	
Poultry of all kinds.....	518,965		Number in bearing.....	4,923,877
Value.....	\$547,908			
Colonies of bees.....	25,980		Small fruits—	
Value.....	\$99,762		Strawberries, acres.....	1,330
			Blackberries and dewberries, acres.....	290
			All others, acres.....	315
			Total.....	1,975
Principal Crops.			Nuts—	
	Acres	Bushels		Number bearing trees
Corn.....	9,084	249,295	Almonds.....	76,949
Oats.....	973	88,720	Pecans.....	313
Wheat.....	6,700	59,866	Walnuts.....	281,697
Barley.....	32,804	785,129	Total.....	359,349
Kafir corn and milo maize.....	106	2,145		
Dry edible beans.....	3,874	105,011	Irrigation.	
Potatoes.....	4,140	413,151	Number of farms irrigated in 1909.....	4,699
			Acres irrigated in 1909.....	145,536
			Acres enterprises were capable of irrigating in 1910.....	183,506
			Acres included in projects.....	241,794
			Main ditches, number.....	601
			Length, miles.....	800
			Laterals, number.....	494
			Length, miles.....	500
			Flowing wells, number.....	376
			Pumped wells, number.....	1,673
			Cost of irrigation enterprises up to July 1, 1910.....	\$7,817,023
			Average cost per acre irrigation enterprises were capable of irrigating in 1910.....	\$42.60
			Mineral Production in 1916.	
			Substance.....	Amount Value
			Brick, M.....	83,005 \$790,912
			Clay, tons.....	6,323 10,549
			Gems.....	600
			Mineral water, gallons.....	320,700 8,552
			Natural gas, M cu. ft.....	2,063,694 139,522
			Petroleum, barrels.....	2,875,468 1,871,980
			Potash, tons.....	1,864 334,709
			Silica.....	612 1,694
			Stone, miscellaneous.....	971,153
			Other minerals*.....	373,374
			Total.....	\$4,463,045
			Number of mineral springs.....	14

*Includes borax, copper, graphite and salt.

MADERA COUNTY.

Date of creation, March 11, 1893.

		1890	1900	1910	1915 (estimated)
Land area, 2,112 square miles.	Population..	-----	6,364	8,368	-----
County seat, Madera (city).	Population..	-----	-----	2,404	8,300
Population per square mile, 4.0.					

Storey (Station):		Highest	Lowest	Inches	Inches
Elevation, 296 feet.	1916: Temperature....	105	26	Rainfall....18.02	Snow.... 0
	1917: Temperature....	107	24	Rainfall.... 4.99	Snow.... 0

Madera County is in the center of the San Joaquin Valley, bounded on the north by Merced and Mariposa counties, on the southeast and west by Fresno County, from which it was formed in 1893. The eastern portion of the county extends far up in the Sierra Nevada Mountains. From the foothills to the San Joaquin River, a distance of about forty miles, the land is level and adapted to all kinds of agricultural pursuits. The higher mountains are heavily timbered with valuable wood, principally sugar and white pine. Lumbering, stock raising, quarrying, mining, fruit growing, and farming are the principal industries. There are two large wineries in the county. The power plant of the San Joaquin Light and Power Company is near North Fork, in this county. The granite quarries at Knowles furnish employment to a large number of men.

Irrigation water is now secured chiefly from wells, which at a shallow depth give good supply. About 10,000 acres is the extent supplied from sources other than wells, but there is strong agitation for the formation of an immense irrigation district, to bring gravity water from the San Joaquin and Fresno rivers to an area of 100,000 acres or more. To further this the Madera County Irrigation Bureau was organized and has done active work.

This county, until recently, was one of large individual land holdings. A single firm owned over 200,000 acres; another 108,000 acres; thousand-acre ranches were not considered large. Now the big holders are beginning to subdivide and the modest rancher who seeks to make a living on forty, sixty, or eighty acres, is coming more and more into his own. The Chowchilla Ranch was opened for sale in October, 1912; it is situated fourteen miles north of Madera, the county seat, and great progress has been made in its development.

Alfalfa fed to hogs and cows is one of the chief sources of gain. A large co-operative creamery in Madera monthly disburses thousands of dollars to dairymen. Fruits do well, raisins, figs and olives being among the leading crops.

The Mother Lode of the Sierra Nevadas extends into this county and along it are located many gold mines, some of which have earned records as producers. There are also deposits of iron ore and some copper. These are difficult of access and development has been greatly retarded on this account. Iron ore from the Minarets district runs 65 to 70 per cent. There are known deposits of lead, tin, zinc, tungsten, cobalt, asbestos and platinum, and the problem of their development is one of transportation. Listed among the largest granite quarries in the state, those near Raymond have supplied stone for San Francisco's city hall, post office and other large structures.

In 1915 the lumber cut here was 35,000,000 feet—sugar pine and yellow pine, fir and incense cedar.

The Mariposa Big Tree Grove skirts Madera County and the mountain highway offers great scenic beauties to the tourist bound for Yosemite Valley, just below its borders.

The state highway intersects Madera County, north and south.

(From the report of the County Horticultural Commissioner.)

	Non-bearing acreage, 1917	Bearing acreage		Non-bearing acreage, 1917	Bearing acreage
Almonds	85	50	Plums	20	45
Alfalfa	-----	20,000	Pears	15	15
Apricots	156	20	Peaches	265	1,450
Apples	50	200	Potatoes	-----	750
Berries	5	20	Egyptian corn and milo maize	-----	3,000
Beans	-----	4,000	Raisin grapes	500	3,000
Citrus	4	10	Truck gardens	-----	100
Figs	440	275	Wine grapes	-----	3,500
Nectarines	6	20	Walnuts	50	1
Olives	775	300	Sugar beets	-----	1,000
Prunes	60	75			

MADERA COUNTY SUMMARY.

(Census 1910.)

Number of Farms Classified by Size.		Domestic Animals on Farms and Ranges.	
Under 3 acres	-----	Cattle*—	
2 to 9 acres	13	Dairy cows	1,502
10 to 19 acres	21	Other cows	12,406
20 to 49 acres	76	Yearling heifers	2,425
50 to 99 acres	23	Calves	2,975
100 to 174 acres	151	Yearling steers and bulls	2,252
175 to 259 acres	27	Other steers and bulls	3,946
260 to 499 acres	66		
500 to 999 acres	59	Total	27,906
1,000 acres and over	137	Value	\$582,792
Total	573	Horses—	
Total in 1900	523	Mature horses	3,496
		Yearling colts	334
		Spring colts	239
		Total	4,070
		Value	\$386,856
		Mules—	
		Mature mules	2,928
		Yearling colts	154
		Spring colts	59
		Total	3,141
		Value	\$454,606
		Asses and burros—	
		Number	49
		Value	\$9,301
		Swine—	
		Mature hogs	4,444
		Spring pigs	2,409
		Total	6,853
		Value	\$36,151

*Includes animals, age and sex not specified.

MADERA COUNTY SUMMARY—Continued.

Domestic Animals on Farms and Ranges—Continued.					
Sheep—			Orchard fruits—		
Rams, ewes and wethers.....	6,260		Apples.....	20,576	Number bearing trees
Spring lambs.....	3,837		Apricots.....	9,408	
			Cherries.....	40	
Total.....	10,106		Peaches and nectarines.....	40,989	
Value.....	\$23,145		Pears.....	1,185	
			Prunes and plums.....	7,570	
Goats—			Total.....	80,156	
Number.....	278		Tropical fruits—		
Value.....	\$717		bearing trees		
Total value all domestic animals	\$1,493,568		Figs.....	4,321	Number
Poultry and bees—			Lemons.....	15	
Poultry of all kinds.....	23,246		Oranges.....	184	
Value.....	\$13,024		Pomeles.....	2	
Colonies of bees.....	875		Olives.....	18,010	
Value.....	\$1,115		Total.....	22,532	
Principal Crops.			Grapevines—		
	Acres	Bushels	Number in bearing.....	1,530,630	
Corn.....	1	50	Small fruits—		
Oats.....	10,569	175,047	Strawberries, acres.....	2	
Wheat.....	39,468	370,499	Blackberries and dewberries, acres.....	3	
Barley.....	90,341	1,170,945	All others, acres.....	2	
Kafir corn and milo maize.....	343	4,948	Total.....	7	
Dry edible beans.....	15	333	Nuts—		
Potatoes.....	75	6,692	bearing trees		
			Almonds.....	2,778	Number
Hay and forage—			Pecans.....	5	
Timothy alone.....	5	6	Walnuts.....	14	
Alfalfa.....	5,735	16,717	Total.....	2,797	
Other tame and cultivated			Irrigation.		
grasses.....	60	78	Number of farms irrigated in 1909...	158	
Wild, salt, or prairie grasses.....	516	423	Acres irrigated in 1909.....	38,705	
Grain cut green.....	11,283	12,757	Acresage enterprises were capable of		
All other hay and forage.....	7	2	irrigating in 1910.....	51,230	
Totals.....	17,606	29,978	Acresage included in projects.....	32,321	
Poultry products—			Main ditches, number.....	34	
Poultry raised, number.....	23,137		Length, miles.....	79	
Eggs produced, dozen.....	67,932		Laterals, number.....	30	
Value poultry and eggs produced	\$29,336		Length, miles.....	294	
Honey and wax—			Pumped wells, number.....	38	
Honey produced, pounds.....	16,439		Cost of irrigation enterprises up to		
Wax produced, pounds.....	370		July 1, 1910.....	\$512,068	
Value of honey and wax produced	\$1,052		Average cost per acre irrigation		
Wool—			enterprises were capable of irrigat-		
Wool, fleeces shorn.....	4,905		ing in 1910.....	\$10.00	
Mohair and goat hair, fleeces shorn	60		Mineral Production in 1916.		
Value wool and mohair produced..	\$2,272		Substance	Amount	Value
Special crops—			Copper, pounds.....	124,236	\$30,574
Potatoes, acres.....	75		Gold.....		10,306
Sweet potatoes, acres.....	2		Granite, cu. ft.....	123,865	172,191
All other vegetables, acres.....	256		Silver.....		1,772
			Stone, miscellaneous.....		7,915
			Total.....	\$222,758	
			Number of mineral springs.....	10	

MARIN COUNTY.

Date of creation, February 18, 1856.

	1880	1900	1910	1915 'estimated'
Land area, 529 square miles.	Population 13,672	15,702	25,114	-----
County seat, San Rafael city.	Population 3,290	3,879	5,934	6,000
Population per square mile, 47.5.				

Point Reyes (Station):	Highest	Lowest	Inches	Inches
Elevation, 490 feet.	1916: Temperature 89	35	Rainfall 20.18	Snow T
	1917: Temperature 90	32	Rainfall 8.34	Snow 0

Marin County is decidedly one of water frontage, being bounded on the west and south by the Pacific Ocean and by the Golden Gate, which separates it from San Francisco by only a mile and a half at its nearest point, and on the east by San Francisco Bay.

The topographical features are rolling hills and numerous small valleys. A part of the Coast Range crosses Marin in a northwesterly and southeasterly direction, and much of the surface of the county is broken and hilly, but a considerable portion immediately on the shore is composed of marsh and overflowed lands. A part of the Coast Range crosses the county, the highest point of which is Mount Tamalpais, which has an elevation of 2,520 feet.

The principal industry is dairying, but of late years attention has been paid to fruit growing in the Novato district.

At Bivalve Bay and Tomales are located the largest oyster beds in the state. There are also the shrimp fisheries at Point Pedro, the crab fishing with headquarters at Sausalito, the Booth Sardine Cannery at Hamlet. Potato and bean raising chiefly in the northern end of the county around Tomales and Fallon. Hog, poultry and Belgian rabbit raising throughout the county. There are also a number of sheep raised around Point Reyes Station.

MARIN COUNTY SUMMARY.

(Census 1910.)

Number of Farms Classified by Size.		Value of All Farm Property.	
Under 3 acres	6	Total value in 1910.....	\$12,426,158
3 to 9 acres	35	Total value in 1900.....	10,866,511
10 to 19 acres	54	Per cent increase 1900-1910.....	14.4
20 to 49 acres	36	Land in 1910.....	9,284,625
50 to 99 acres	30	Land in 1900.....	8,330,450
100 to 174 acres	35	Buildings in 1910.....	1,156,830
175 to 250 acres	40	Buildings in 1900.....	914,020
260 to 499 acres	72	Implements and machinery in 1910.....	343,482
500 to 999 acres	111	Implements and machinery in 1900.....	207,110
1,000 acres and over.....	79	Domestic animals, poultry, and bees	
		in 1910.....	1,541,221
Total	498	Domestic animals, poultry, and bees	
Total in 1900.....	462	in 1900.....	1,414,931
Land and Farm Areas.		Domestic Animals on Farms and Ranges.	
Approximate land, acres.....	338,560	Cattle*—	
Land in farms in 1910.....	268,442	Dairy cows	24,803
Land in farms in 1900.....	322,374	Other cows	3,564
Improved land in farms in 1910.....	93,115	Yearling heifers	2,830
Improved land in farms in 1900.....	47,533	Calves	6,500
Woodland in farms.....	49,978	Yearling steers and bulls.....	537
Other unimproved land.....	120,349	Other steers and bulls.....	641
		Total	30,336
		Value	*\$1,046,404

*Includes animals, age and sex not specified.

MARIN COUNTY SUMMARY—Continued.

Domestic Animals on Farms and Ranges—Continued.				
Horses—			Wool—	
Mature horses	2,338		Wool, fleeces shorn	2,338
Yearling colts	166		Value wool and mohair produced ..	\$2,816
Spring colts	54		Special crops—	
Total	2,558		Potatoes, acres	435
Value	\$248,076		All other vegetables, acres	117
Mules—			Orchard fruits—	
Mature mules	11		Number bearing trees	
Total	11		Apples	15,996
Value	\$980		Apricots	1,699
Swine—			Cherries	165
Mature hogs	8,812		Peaches and nectarines	6,313
Spring pigs	7,297		Pears	4,151
Total	16,099		Prunes and plums	3,775
Value	\$126,569		Total	32,298
Sheep—			Tropical fruits—	
Rams, ewes, and wethers	1,930		Number bearing trees	
Spring lambs	1,025		Figs	201
Total	2,955		Lemons	26
Value	\$14,391		Oranges	79
Goats—			Pomeelos	5
Number	147		Olives	48
Value	\$556		Total	387
Total value all domestic animals ..	\$1,436,976		Grapevines—	
Poultry and bees—			Number in bearing	115,198
Poultry of all kinds	203,277		Small fruits—	
Value	\$104,178		Strawberries, acres	1
Colonies of bees	20		All others	2
Value	\$98		Total	3
Principal Crops.			Nuts—	
			Number bearing trees	
Corn	52	2,061	Almonds	151
Oats	850	31,430	Walnuts	61
Wheat	57	1,155	Total	212
Barley	16	231	Irrigation.	
Dry edible beans	1	8	Number of farms irrigated in 1909 ..	6
Potatoes	435	33,469	Acres irrigated in 1909	67
Hay and forage—			Acres enterprises were capable of	
Timothy alone	80	200	irrigating in 1910	71
Clover alone	80	80	Acres included in projects	71
Alfalfa	25	86	Main ditches, number	5
Other tame and cultivated			Length, miles	5
grasses	3,428	5,800	Pumped wells, number	1
Wild, salt, or prairie grasses ..	169	179	Cost of irrigation enterprises up to	
Grains cut green	13,055	20,787	July 1, 1910	\$3,380
All other hay and forage	623	11,040	Average cost per acre irrigation	
Totals	17,460	\$7,972	enterprises were capable of irrigat-	
Poultry products—			ing in 1910	\$47.61
Poultry raised, number	141,629		Mineral Production in 1916.	
Eggs produced, dozen	1,465,911		Substance	Value
Value poultry and eggs produced ..	\$423,887		Stone, miscellaneous	\$104,306
Honey and wax—			Other minerals*	74,000
Honey produced, pounds	295		Total	\$178,306
Wax produced, pounds	55		Number of mineral springs	4
Value of honey and wax produced ..	\$49			

*Includes brick and mineral water.

MARIPOSA COUNTY.

Date of creation, February 18, 1850.

		1890	1900	1910
Land area, 1,463 square miles.	Population-----	3,787	4,720	3,966
County seat, Mariposa (township).	Population-----	697	1,009	654
Population per square mile, 2.7.				

Yosemite (Station):	Highest	Lowest	Inches	Inches
Elevation, 3,960 feet.	1916: Temperature...103	3	Rainfall...49.43	Snow...177.0
	1917: Temperature... 96	0	Rainfall...18.93	Snow... 91.5

The county reaches eastward from the edge of the San Joaquin plains across the foothills far into the Sierra Nevada Mountains, its altitude varying from 300 to 13,000 feet, Mount Dana, the highest point of land, reaching an elevation of 13,627 feet.

There are about 300,000 acres of plains and lower foothills together, the latter predominating, and the balance consists of high hills and mountains; bare of timber on the plains, then scattering oak and scrub pines, then rising to immense tracts of sugar and yellow pine, fir, spruce, and cedar, and the giant sequoias of Mariposa Big Tree Grove, which contains some 427 trees, many of 35 feet in diameter and 150 to 300 feet high. The county is well provided with water in the Merced, Mariposa and Chowchilla rivers. The famous Yosemite Valley is located in the eastern part of this county, at an elevation of 4,060 feet, with walls 5,000 feet higher. The Merced River flows through the valley.

There are three mining belts in the county—the Mother Lode with its offshoots, the east belt, and the copper belt. The mineral production in 1916 was valued at \$487,971, of which \$401,718 was gold. There are also four mineral springs in the county.

Irrigation is practiced to some extent, water being taken from streams and mining ditches, and used with good results.

MARIPOSA COUNTY SUMMARY.

(Census 1910.)

Number of Farms Classified by Size.		Value of All Farm Property.	
3 to 9 acres	1	Total value in 1910.....	\$2,329,325
10 to 19 acres	4	Total value in 1900.....	1,323,151
20 to 49 acres	4	Per cent increase 1900-1910.....	113.0
50 to 99 acres	21	Land in 1910.....	1,817,100
100 to 174 acres	97	Land in 1900.....	752,090
175 to 259 acres	15	Buildings in 1910.....	276,180
260 to 499 acres	101	Buildings in 1900.....	207,640
500 to 999 acres	51	Implements and machinery in 1910.....	79,408
1,000 acres and over.....	36	Implements and machinery in 1900.....	59,980
Total	330	Domestic animals, poultry, and bees	
Total in 1900.....	381	in 1910.....	654,552
		Domestic animals, poultry, and bees	
		in 1900.....	305,451
		Domestic Animals on Farms and Ranges.	
		Cattle*—	
		Dairy cows	905
		Other cows	7,477
		Yearling heifers	1,602
		Calves	2,115
		Yearling steers and bulls.....	1,868
		Other steers and bulls.....	2,876
		Total	16,871
		Value	\$370,521

Land and Farm Areas.

Approximate land, acres.....	936,320
Land in farms in 1910.....	206,059
Land in farms in 1900.....	160,156
Improved land in farms in 1910.....	37,017
Improved land in farms in 1900.....	14,003
Woodland in farms.....	85,150
Other unimproved land.....	53,892

*Includes animals, age and sex not specified.

MARIPOSA COUNTY SUMMARY—Continued.

Domestic Animals on Farms and Ranges—Continued.

Horses—	
Mature horses	1,896
Yearling colts	218
Spring colts	126
Total	2,240
Value	\$182,986
Mules—	
Mature mules	201
Yearling colts	46
Spring colts	49
Total	296
Value	\$30,565
Asses and burros—	
Number	98
Value	\$10,188
Swine—	
Mature hogs	6,160
Spring pigs	2,722
Total	8,882
Value	\$46,704
Sheep—	
Rams, ewes, and wethers	877
Spring lambs	304
Total	1,181
Value	\$4,409
Goats—	
Number	981
Value	\$2,366
Total value all domestic animals	\$647,738
Poultry and bees—	
Poultry of all kinds	12,217
Value	\$6,698
Colonies of bees	34
Value	\$151

Principal Crops.

	Acres	Bushels
Corn	174	2,880
Oats	55	1,100
Wheat	124	1,598
Barley	1,424	19,130
Dry edible beans	62	409
Potatoes	76	8,587
Hay and forage—		
Timothy alone	65	100
Timothy and clover mixed	29	34
Clover alone	25	6
Alfalfa	28	97
Other tame and cultivated grasses	177	223
Wild, salt, or prairie grasses	685	659
Grains cut green	5,472	4,584
All other hay and forage	40	46
Total	6,521	6,049
Poultry products—		
Poultry raised, number	19,583	
Eggs produced, dozen	49,728	
Value poultry and eggs produced	\$28,844	
Honey and wax—		
Honey produced, pounds	300	
Wax produced, pounds	25	
Value of honey and wax produced	\$61	

Wool—

Wool, fleeces shorn	855
Mohair and goat hair, fleeces shorn	154
Value wool and mohair produced	\$376

Special crops—

Potatoes, acres	76
All other vegetables, acres	198

Orchard fruits—	Number bearing trees
Apples	16,001
Apricots	223
Cherries	190
Peaches and nectarines	1,618
Pears	701
Prunes and plums	762
Total	19,481

Tropical fruits—	Number bearing trees
Figs	461
Lemons	36
Oranges	1,169
Pomeelos	1
Olives	2,711
Total	4,378

Grapevines—	
Number in bearing	28,647

Small fruits—	
Strawberries, acres	1
Blackberries and dewberries, acres	2
All others, acres	4
Total	7

Nuts—	Number bearing trees
Almonds	159
Walnuts	91
Total	250

Irrigation.

Number of farms irrigated in 1909	56
Acres irrigated in 1909	376
Acresage enterprises were capable of irrigating in 1910	546
Acresage included in projects	767
Main ditches, number	49
Length, miles	21
Pumped wells, number	2
Cost of irrigation enterprises up to July 1, 1910	\$12,440
Average cost per acre irrigation enterprises were capable of irrigating in 1910	\$24.02

Mineral Production in 1916.

Substance	Amount	Value
Copper, pounds	162,818	\$39,980
Gold		401,718
Lead, pounds	1,867	126
Silver		2,030
Stone, miscellaneous		29,572
Other minerals		4,148
Total		\$487,971

MENDOCINO COUNTY.

Date of creation, February 18, 1850.

	1890	1900	1910	1915 (estimated)
Land area, 3,453 square miles.	Population.. 17,612	20,465	23,929	-----
County seat, Ukiah (city).	Population.. 1,627	1,850	2,136	2,600
Population per square mile, 6.9.				

	Highest	Lowest	Inches	Inches
Elevation, 620 feet.	1916: Temperature...109	20	Rainfall...34.44	Snow...15.5
	1917: Temperature...106	16	Rainfall...25.29	Snow... 0

Mendocino County has 100 miles of coast line. In general topography it is mountainous, with valleys lying between the mountain chains and along the coast. It, together with the counties of Humboldt and Trinity, embodies the greater part of the northern Coast Range Mountains, and contains their highest peaks and deepest canyons, fertile valleys, wooded slopes, rushing rivers, and picturesque scenery. It shares with Sonoma, Humboldt and Del Norte the glory of the great redwood belt.

The county has a length of 85 miles from north to south, and the width is 45 miles from east to west. It is traversed the entire length by the Coast Range, which is composed of two parallel ridges. These mountains vary in height from 1,000 feet to 3,000 feet. Their lower slopes have a gentle declivity, while the higher portions are generally precipitous and furrowed with ravines and gulches. There are many small productive valleys throughout the county.

The Eel River, running north, and the Russian River, running south, have their sources in this county, and are the principal streams.

Stock raising, grazing, and wool growing are the principal industries.

The Angora goat thrives well, the mountains being an ideal pasture. No irrigation is required, and crops do not suffer from drought at any time.

In the county are large tracts of redwood, and it also has a large number of mineral springs.

Mendocino is one of the leading counties in the production of hops.

Orchard fruits do well and the number of apricot, cherry, peach, pear and prune trees has considerably increased the last few years.

In 1916 the number of apple trees in bearing was 61,500, apricots had increased to 3,000, cherries 5,025, peaches 15,000, pears 32,000 and prunes 45,000, compared with the year 1910.

MENDOCINO COUNTY SUMMARY—Continued.

		Irrigation.	
Orchard fruits—	Number bearing trees	Number of farms irrigated in 1909....	39
Apples	63,263	Acres irrigated in 1909.....	371
Apricots	187	Acresage enterprises were capable of irrigating in 1910.....	589
Cherries	1,181	Acresage included in projects.....	1,305
Peaches and nectarines.....	6,928	Main ditches, number.....	33
Pears	15,829	Length, miles	19
Prunes and plums.....	37,197	Laterals, number	8
Total	125,262	Length, miles	6
Tropical fruits—	Number bearing trees	Pumped wells, number.....	6
Figs	368	Cost of irrigation enterprises up to July 1, 1910.....	\$30,297
Oranges	4	Average cost per acre irrigation enterprises were capable of irrigating in 1910.....	\$61.35
Olives	7		
Total	369		
Grapevines—			
Number in bearing.....	924,191		
Small fruits—			
Strawberries, acres	22		
Blackberries and dewberries, acres	14		
All others	21		
Total	57		
Nuts—	Number bearing trees		
Almonds	220		
Walnuts	360		
Total	589		

Mineral Production in 1916.		
Substance	Amount	Value
Magnesite, tons	800	\$2,400
Manganese, tons	1,735	43,005
Stone, miscellaneous		8,275
Other minerals		2,000
Total		\$55,680
Number of mineral springs.....		35

MERCED COUNTY.

Date of creation, April 19, 1855.

		1890	1900	1910	1915 (estimated)
Land area, 1,995 square miles.	Population--	8,085	9,215	15,148	-----
County seat, Merced (city).	Population--	2,009	1,969	3,102	4,000
Population per square mile, 7.6.					

		Highest	Lowest	Inches	Inches
Elevation, 173 feet.	1916: Temperature---	105	25	Rainfall---16.47	Snow-- 2.0
	1917: Temperature---	108	21	Rainfall--- 5.33	Snow-- 0

(Information supplied by the Merced Chamber of Commerce.)

Merced County lies almost in the center of the state and a little north of the center of the San Joaquin Valley, bounded on the east by the Sierra Nevada Mountains and on the west by the Coast Range. Its total area is approximately 2,000 square miles, the size of the state of Delaware.

The San Joaquin River flows through the county in a northerly direction dividing it almost in two parts, the Merced River rising in the Sierra Nevada Mountains, flows through the famous Yosemite Valley and traverses Merced County on the eastern half. Numerous creeks and canals furnish natural irrigation besides three irrigation systems, two on the east side and one on the west, and as the average rainfall of Merced is twelve inches the county is as well watered from natural cause as any county in the San Joaquin Valley.

County roads are plentiful and well kept; the state highway runs directly through the county, passing through the county seat, Merced, and many of the principal towns. The beautiful Yosemite Valley is reached by rail and good stage roads directly from Merced.

Merced County was once a huge pasture, later a portion of the land was devoted to grain raising but with subdivision irrigation and intensive cultivation Merced leads in the diversified crops capable of being raised within its borders.

Alfalfa grows in abundance, and dairying, stock raising and poultry are flourishing industries.

Merced County excels in the quality and quantity of its sweet potatoes grown, while the fertile soil and climatic conditions are ideal for the raising of figs, peaches, grapes, olives and almonds.

Truck gardening with tomatoes, squash melons and beans also is a well-developed industry.

MERCED COUNTY SUMMARY—Continued.

Special crops—		Number bearing trees	
Potatoes, acres	246		
Sweet potatoes, acres	2,114		
All other vegetables, acres	380		
Sugar beets, acres	2		
Orchard fruits—		Number bearing trees	
Apples	8,941		
Apricots	7,381		
Cherries	843		
Peaches and nectarines	134,991		
Pears	5,704		
Prunes and plums	5,401		
Total	168,013		
Tropical fruits—		Number bearing trees	
Figs	9,837		
Lemons	309		
Oranges	1,572		
Pomeelos	11		
Olives	6,981		
Total	18,613		
Grapevines—		Number in bearing	
	1,281,342		
Small fruits—			
Strawberries, acres	5		
Blackberries and dewberries, acres	21		
All others, acres	8		
Total	34		
Nuts—		Number bearing trees	
Almonds			17,182
Pecans			31
Walnuts			683
Total			17,845
Irrigation.			
Number of farms irrigated in 1909...		1,417	
Acres irrigated in 1909		151,996	
Acreage enterprises were capable of irrigating in 1910		248,670	
Acreage included in projects		281,719	
Main ditches, number		45	
Length, miles		261	
Laterals, number		353	
Length, miles		352	
Flowing wells, number		29	
Pumped wells, number		78	
Cost of irrigation enterprises up to July 1, 1910		\$3,748,211	
Average cost per acre irrigation enterprises were capable of irrigating in 1910		\$15.07	
Mineral Production in 1916.			
Substance	Amount	Value	
Magnesite, tons	90	\$720	
Other minerals		80,510	
Total		\$81,530	

‡Includes gold, platinum and silver.

MODOC COUNTY.

Date of creation, February 17, 1874.

	1890	1900	1910	1913 (estimated)
Land area, 3,823 square miles.	Population.. 4,986	5,076	6,191	-----
County seat, Alturas (town).	Population.. -----	-----	916	1,500
Population per square mile, 1.6.				

	Highest	Lowest	Inches	Inches
Elevation, 4,400 feet.	1916: Temperature... 99	—18	Rainfall... 15.22	Snow... 65.7
	1917: Temperature... 104	—32	Rainfall... 11.33	Snow... 67.2

Modoc County is in the extreme northeastern corner of California. The county is a succession of mountain ranges and valleys branching off from the Sierra Nevada Mountains, the principal spur of which is the Warner Range. It is principally drained by Pit River, which flows into the Sacramento, near Redding, Shasta County. The lava bed section occupies over one-half the total area. The county has two large lakes, but barring the lakes and the large cattle ranges, it is sparsely settled.

The valleys are the principal features, the leading ones being the Surprise, Goose Lake, Hot Springs, Jess, Big and the Little Hot Springs.

Wheat, barley, apples, vegetables, and hay are the leading staples. Thousands of acres are in alfalfa, and the stock and dairying industries are thriving. Snow falls in the valleys and much deeper in the mountains, forming the principal supply of moisture for the development of the country. Stock is usually fed for several months through the winter, although it is not always necessary to do so.

The county is well watered. Surprise Valley has nearly twenty streams, which run both winter and summer. Goose Lake Valley is equally fortunate, which Pit River supplies with water for many farms and ranches. Many springs exist, especially in the mountains, and in the Surprise Valley there are many artesian wells.

The timber of the county is pine and fir in the Warner Range, and sugar pine in the western part.

Horticulture has had but a small place in the industries, only sufficient fruit for home uses being raised. The wild plum is about the only native fruit.

MODOC COUNTY SUMMARY.

(Census 1910.)

Number of Farms Classified by Size.		Land and Farm Areas.	
Under 3 acres	5	Approximate land acres.....	2,446,730
3 to 9 acres	18	Land in farms in 1910.....	410,124
10 to 19 acres.....	13	Land in farms in 1900.....	298,755
20 to 49 acres.....	21	Improved land in farms in 1910.....	164,784
50 to 99 acres.....	44	Improved land in farms in 1900.....	122,647
100 to 174 acres.....	239	Woodland in farms.....	75,668
175 to 250 acres.....	68	Other unimproved land.....	169,682
250 to 499 acres.....	171		
500 to 999 acres.....	32		
1,000 acres and over.....	75		
Total	736		
Total in 1900.....	638		

MODOC COUNTY SUMMARY—Continued.

Value of All Farm Property.	
Total value in 1910.....	\$11,876,268
Total value in 1900.....	5,368,827
Per cent increase 1900-1910.....	112.1
Land in 1910.....	7,379,085
Land in 1900.....	2,825,360
Buildings in 1910.....	1,004,180
Buildings in 1900.....	521,900
Implements and machinery in 1910.....	365,559
Implements and machinery in 1900.....	174,200
Domestic animals, poultry and bees in 1910.....	2,627,448
Domestic animals, poultry and bees in 1900.....	1,842,367
Domestic Animals on Farms and Ranges.	
Cattle—	
Dairy cows.....	2,973
Other cows.....	18,502
Yearling heifers.....	6,937
Calves.....	4,006
Yearling steers and bulls.....	6,517
Other steers and bulls.....	7,449
Total.....	46,916
Value.....	\$1,005,026
Horses*—	
Mature horses.....	12,247
Yearling colts.....	2,212
Spring colts.....	976
Total.....	15,636
Value.....	*\$1,145,568
Mules—	
Mature mules.....	565
Yearling colts.....	441
Spring colts.....	126
Total.....	1,132
Value.....	\$63,005
Asses and burros--	
Number.....	98
Value.....	\$26,511
Swine—	
Mature hogs.....	5,328
Spring pigs.....	3,160
Total.....	8,488
Value.....	\$53,595
Sheep—	
Rams, ewes and wethers.....	46,078
Spring lambs.....	30,484
Total.....	76,562
Value.....	\$286,882
Goats—	
Number.....	549
Value.....	\$2,331
Total value all domestic animals.....	\$2,612,918

Poultry and bees—			
Poultry of all kinds.....	23,789		
Value.....	\$11,466		
Colonies of bees.....	839		
Value.....	\$3,004		
Principal Crops.			
	Acres	Bushels	
Corn.....	6	209	
Oats.....	728	22,138	
Wheat.....	9,802	195,924	
Barley.....	8,650	227,473	
Dry edible beans.....	86	1,567	
Potatoes.....	346	44,614	
Hay and forage—		Acres	Tons
Timothy alone.....	1,512	3,662	
Timothy and clover mixed.....	5,754	10,195	
Alfalfa.....	10,869	24,480	
Other tame and cultivated grasses.....	3,227	5,373	
Wild, salt, or prairie grasses.....	50,879	70,143	
Grains cut green.....	3,496	4,992	
All other hay and forage.....	42	61	
Totals.....	75,479	118,906	
Poultry products—			
Poultry raised, number.....		38,112	
Eggs produced, dozen.....		134,731	
Value poultry and eggs produced.....		\$48,337	
Honey and wax -			
Honey produced, pounds.....		19,706	
Wax produced, pounds.....		232	
Value of honey and wax produced.....		\$2,055	
Wool—			
Wool, fleeces shorn.....		39,538	
Mohair and goat hair, fleeces shorn.....		1,356	
Value wool and mohair produced.....		\$55,588	
Special crops—			
Potatoes, acres.....		346	
All other vegetables, acres.....		549	
Sugar beets, acres.....		0	
		Number	
Orchard fruits -		bearing trees	
Apples.....		28,009	
Apricots.....		652	
Cherries.....		933	
Peaches and nectarines.....		2,113	
Pears.....		1,889	
Prunes and plums.....		3,182	
Total.....		37,776	
Grapevines--			
Number in bearing.....		765	
Small fruits—			
Strawberries, acres.....		9	
Blackberries and dewberries, acres.....		9	
All others, acres.....		19	
Total.....		37	
Nuts		Number	
Walnuts.....		bearing trees	
		3	

*Includes animals, age and sex not specified.

MODOC COUNTY SUMMARY—Continued.

Irrigation.		Mineral Production in 1916.	
		Substance:	Value
Number of farms irrigated in 1909.....	437	Gold	\$2,729
Acres irrigated in 1909.....	82,075	Silver	30
Acres enterprises were capable of irrigating in 1910.....	89,476	Stone, miscellaneous	200
Acres included in projects.....	124,106	Other minerals	540
Main ditches, number.....	446	Total	\$3,559
Length, miles.....	637	Number of mineral springs.....	15
Laterals, number.....	490		
Length, miles.....	175		
Flowing wells, number.....	45		
Pumped wells, number.....	2		
Cost of irrigation enterprises up to July 1, 1910.....	\$301,047		
Average cost per acre irrigation enterprises were capable of irrigat- ing in 1910.....	\$3.36		

MONO COUNTY.

Date of creation, April 24, 1861.

		1890	1900	1910
Land area, 3,030 square miles.	Population-----	2,002	2,167	2,042
County seat, Bridgeport, township.	Population-----	335	373	312
Population per square mile, 0.7.				

		Highest	Lowest	Inches	Inches
Elevation, 6,500 feet.	1916: Temperature---	89	—36	Rainfall---13.41	Snow-173.0
	1917: Temperature---	85	—33	Rainfall---4.99	Snow-39.6

Mono is a long narrow county lying on the eastern slope of the Sierras, its greatest length bordering on the state of Nevada, which forms its northeastern boundary, its general direction being northeast and northwest.

The general contour is mountainous and very rough, all but 400 square miles, or less, being mountainous. The western portion lies among the Sierra Nevada Mountains, along their summit, the heights being clad in snow, and the slopes of the range being covered with forest trees.

Among the highest peaks are Mount Dana, 13,627 feet; Mount Lyell, 13,217 feet, and Castle Peak, 13,000 feet. The greater portion of the population is in the eastern part, in the valleys and the mining camps in the surrounding mountains. This portion, which has always been considered a strange, mysterious country, is of a desert-like, volcanic character, abounding in salt pools, alkali, and volcanic table-lands.

Mono Lake, the "Dead Sea of America," is one of the attractions, and is situated in the center of the county; it is about 12 miles long and 8 miles wide; its waters are somewhat unusually compound, various chemical substances being found in solution in them. The lake has a number of small streams flowing into it, but is without perceptible outlet.

Owens River in the south, which takes its rise in a high peak in the Sierra, and Kitten and Walker rivers in the north, are the principal streams. One passes through the southern part into Inyo County. The other, after rising in Mono County, continues its course into the state of Nevada. These two streams with their branches, together with the small streams that flow into Mono Lake, furnish the principal water supply for irrigation. There are 20 mineral springs in the county.

Grazing is the leading industry, and the pasturage is good and plentiful. Herds of dairy cattle are moving from the valleys during the summer. Large bands of sheep are also driven to its mountains for summer pasturage.

The timber belt is very large and the product of good, marketable quality, but as there is no means of transportation, the development of the lumber interests is retarded, although considerable quantities are used for local mining purposes.

In 1916 the value of mineral products was \$240,990, \$237,084 of which was the value of gold produced, the leading mining camp being at Bodie.

MONO COUNTY SUMMARY.

(Census 1910.)

Number of Farms Classified by Size.			
3 to 9 acres	3	Sheep—	
10 to 19 acres	1	Rams, ewes and wethers	40,805
20 to 49 acres	1	Spring lambs	22,941
50 to 99 acres	4	Total	63,946
100 to 174 acres	27	Value	\$256,477
175 to 259 acres	12		
260 to 499 acres	16	Goats—	
500 to 999 acres	10	Number	25
1,000 acres and over	17	Value	\$77
Total	91	Total value all domestic animals	\$256,519
Total in 1900	112		
Land and Farm Areas.		Poultry and bees—	
Approximate land, acres	1,939,200	Poultry of all kinds	2,515
Land in farms in 1910	115,672	Value	\$1,554
Land in farms in 1900	186,063	Colonies of bees	438
Improved land in farms in 1910	43,882	Value	\$2,045
Improved land in farms in 1900	65,238		
Woodland in farms	8,303	Principal Crops.	
Other unimproved lands	63,987		
Value of All Farm Property.			
Total value in 1910	\$2,347,797	Corn	Acres 4 Bushels 140
Total value in 1900	1,175,743	Oats	42 3,000
Per cent increase 1900-1910	99.7	Wheat	167 2,730
Land in 1910	1,587,813	Dry edible beans	5 133
Land in 1900	519,040	Potatoes	97 12,094
Buildings in 1910	154,700		
Buildings in 1900	87,390	Hay and forage—	Acres Tons
Implements and machinery in 1910	45,845	Timothy and clover mixed	2,278 2,730
Implements and machinery in 1900	26,340	Clover alone	4 10
Domestic animals, poultry and bees		Alfalfa	2,096 6,635
in 1910	550,980	Other tame and cultivated	
Domestic animals, poultry and bees		grasses	70 97
in 1900	542,983	Wild, salt, or prairie grasses	2,494 2,576
Domestic Animals on Farms and Ranges.		All other hay and forage	15 30
Cattle—		Totals	6,947 12,118
Dairy cows	450		
Other cows	2,270	Poultry products—	
Yearling heifers	803	Poultry raised, number	2,559
Calves	686	Eggs produced, dozen	4,541
Yearling steers and bulls	635	Value poultry and eggs produced	\$2,986
Other steers and bulls	427		
Total	5,801	Honey and wax—	
Value	\$107,941	Honey produced, pounds	20,355
Horses—		Wax produced, pounds	425
Mature horses	1,655	Value honey and wax produced	\$2,049
Yearling colts	310		
Spring colts	182	Wool—	
Total	2,097	Wool, fleeces shorn	29,100
Value	\$175,884	Value wool and mohair produced	\$41,200
Mules—		Special crops—	
Mature mules	73	Potatoes, acres	97
Yearling colts	46	All other vegetables, acres	36
Spring colts	17		
Total	136	Orchard fruits—	Number
Value	\$11,535		bearing trees
Asses and burros—		Apples	1,068
Number	62	Apricots	6
Value	\$1,630	Cherries	197
Swine—		Peaches	91
Mature hogs	179	Pears	123
Spring pigs	244	Prunes and plums	86
Total	423	Total	1,586
Value	\$2,709	Grapes—	
		Number in bearing	2,000
		Small fruits, acres	1

MONO COUNTY SUMMARY—Continued.

Irrigation.		Mineral Production in 1916.	
		Substance	Value
Number of farms irrigated in 1909..	76	Gold	\$237,084
Acres irrigated in 1909.....	49,027	Silver	3,606
Acres enterprises were capable of irrigating in 1910.....	50,007	Other minerals	306
Acres included in projects.....	84,973	Total	\$240,990
Main ditches, number.....	85	Number of mineral springs.....	20
Length, miles	172		
Laterals, number	101		
Length, miles	65		
Cost of irrigation enterprises up to July 1, 1910	\$64,282		
Average cost per acre irrigation enterprises were capable of irrigat- ing in 1910.....	1.29		

MONTEREY COUNTY.

Date of creation, February 18, 1850.

	1880	1900	1910	1915 (estimated)
Land area, 3,330 square miles.	Population.. 18,637	19,380	24,146	-----
County seat, Salinas (city).	Population.. 2,339	3,304	3,736	5,000
Population per square mile, 7.3.				
	Highest	Lowest	Inches	Inches
Elevation, 40 feet.	1916: Temperature... 88	25	Rainfall... 18.81	Snow... 0
	1917: Temperature... 97	23	Rainfall... 5.17	Snow... 0

Monterey County is situated about 100 miles south of San Francisco and 300 miles north of Los Angeles, on the Pacific Ocean. It is 124 miles long and 45 miles wide, its extreme length being from north to south.

The county is divided into three sections—the mountains and hills on the east, mountains and hills on the west, and the great Salinas Valley situated between these ranges of mountains.

The portion of Pajaro Valley lying south of the Pajaro River and running to Monterey Bay on the southwest is in Monterey County, and is about 15 miles long and from 6 to 8 miles wide. The land is exceedingly fertile and under a thorough system of cultivation, producing large crops of all kinds of vegetables, grain, fruit, and berries.

There is a considerable acreage in sugar beets, and the largest sugar factory in the state is the Spreckels, situated near Salinas City, having a daily slicing capacity of 4,000 tons.

In the southern part of the county barley excels, and prunes, apricots, cherries and almonds grow to perfection in the foothills, canyons, and small valleys.

The greatest apple district of the state is in the Pajaro Valley, which includes also parts of Santa Cruz County, centering at Watsonville.

Currants, gooseberries, blackberries, loganberries and raspberries grow well. Strawberries are in the market most of the year, and are shipped from Watsonville by carloads.

Dairying is very important, if not a leading industry. Some of the finest dairies in the state are in Monterey County, and some of the best cheese and butter in the state are made here.

In the harbor of Monterey Bay the largest battleships of our navy find anchorage within 100 feet of the shore. The fishing industry is an important one, especially for sardines. More than two-thirds of the abalone catch of the state also comes from this bay. In 1916 the output of abalone was 828 dozen of fresh, and 5,889 cases of canned abalone, of 48 cans to the case. The quality has improved greatly during the past two or three years. In 1917, the salmon catch of five of the leading canneries, amounted to 3,981,670 at Monterey and Santa Cruz, and the catch of sardines numbered 12,700,106, or 311,000 cases. There was also salted about 4,000 tierces of salmon, which weighed about 800 pounds.

MONTEREY COUNTY SUMMARY.

(Census 1910.)

Number of Farms Classified by Size.			
Under 3 acres	11	Asses and burros—	
3 to 9 acres	69	Number	26
10 to 19 acres	71	Value	\$6,276
20 to 49 acres	182	Swine—	
50 to 99 acres	185	Mature hogs	12,567
100 to 174 acres	263	Spring pigs	7,464
175 to 259 acres	127	Total	20,031
260 to 499 acres	282	Value	\$119,455
500 to 999 acres	225		
1,000 acres and over	243	Sheep—	
Total	1,658	Rams, ewes and wethers	17,029
Total in 1900	1,850	Spring lambs	11,845
		Total	28,874
		Value	\$91,901
Land and Farm Areas.		Goats—	
Approximate land, acres	2,131,200	Number	3,983
Land in farms in 1910	1,147,416	Value	\$10,976
Land in farms in 1900	1,087,032	Total value all domestic animals	\$4,069,857
Improved land in farms in 1910	371,509		
Improved land in farms in 1900	373,605	Poultry and bees—	
Woodland in farms	140,377	Poultry of all kinds	128,325
Other improved land	635,530	Value	\$68,280
		Colonies of bees	3,669
		Value	\$13,199
Value of All Farm Property.		Principal Crops.	
Total value in 1910	\$36,021,930		
Total value in 1900	19,409,742		
Per cent increase 1900-1910	80.4		
Land in 1910	27,885,000		
Land in 1900	15,682,700		
Buildings in 1910	2,178,728		
Buildings in 1900	1,353,700		
Implements and machinery in 1910	811,886		
Implements and machinery in 1900	502,400		
Domestic animals, poultry and bees in 1910	4,146,316		
Domestic animals, poultry and bees in 1900	1,920,942		
Domestic Animals on Farms and Ranges.			
Cattle—			
Dairy cows	14,066		
Other cows	27,626		
Yearling heifers	11,046		
Calves	13,806		
Yearling steers and bulls	7,502		
Other steers and bulls	13,133		
Total	88,886		
Value	\$2,079,989		
Horses*			
Mature horses	14,172		
Yearling colts	1,903		
Spring colts	1,268		
Total	17,444		
Value	\$1,676,690		
Mules—			
Mature mules	546		
Yearling colts	66		
Spring colts	30		
Total	642		
Value	\$85,550		

*Includes animals, age and sex not specified.

MONTEREY COUNTY SUMMARY—Continued.

Orchard fruits		Number bearing trees	Irrigation.		
Apples	-----	280,404	Number of farms irrigated in 1909..	238	
Apriots	-----	27,996	Acres irrigated in 1909.....	15,056	
Cherries	-----	1,739	Acres enterprises were capable of irrigating in 1910.....	27,176	
Peaches and nectarines	-----	7,381	Acres included in projects.....	29,914	
Pears	-----	5,194	Main ditches, number.....	106	
Prunes and plums	-----	6,189	Length, miles.....	223	
Total	-----	339,105	Laterals, number.....	23	
Tropical fruits—		Number bearing trees	Length, miles.....	32	
Figs	-----	217	Pumped wells, number.....	102	
Lemons	-----	7	Cost of irrigation enterprises up to July 1, 1910.....	\$495,916	
Oranges	-----	29	Average cost per acre irrigation enterprises were capable of irrigating in 1910.....	\$18.25	
Olives	-----	657			
Total	-----	918			
Grapevines—					
Number in bearing	-----	79,933			
Small fruits—					
Strawberries, acres	-----	263			
Blackberries and dewberries, acres	-----	56			
All others, acres	-----	88			
Total	-----	407			
Nuts—		Number bearing trees	Mineral Production in 1916.		
Almonds	-----	2,196	Substance	Amount	Value
Pecans	-----	3	Mineral water, gals.	5,900	\$590
Walnuts	-----	306	Stone, miscellaneous		58,623
Total	-----	2,505	Other minerals*		50,659
			Total		\$109,872
			Number of mineral springs.....		8

*Includes barytes, feldspar, infusorial earth, quicksilver, salt and silica.

NAPA COUNTY.

Date of creation, February 18, 1850.

		1890	1900	1910 (estimated)	
Land area, 783 square miles.	Population..	16,411	16,451	19,800	-----
County seat, Napa (city).	Population..	4,395	4,036	5,791	6,500
Population per square mile, 25.3.					

St. Helena (Station):		Highest	Lowest	Inches	Inches
Elevation, 255 feet.	1916: Temperature...	108	25	Rainfall...43.51	Snow... 7.0
Napa, 20 feet.	1917: Temperature...	107	23	Rainfall...13.64	Snow... 0

The principal resources of Napa County are the raising of grapes, the making of wine and of grape juice; raising of prunes, pears, plums, and other fruit, and growing of grain. The value of mineral products is also considerable. There is a large cement manufactory at Napa Junction. Among the minerals produced in 1916 are magnesite of the value of \$108,556, quicksilver \$107,525, and mineral water, \$93,370.

Napa County has the great advantage of river transportation to the bay of San Francisco, passenger and freight steamers making daily trips between Napa and San Francisco.

No irrigation is required to produce any crops.

Its southern boundary reaches down to within twenty-nine miles of San Francisco. The Napa River, a short tidal stream which drains the great Napa Valley, is navigable to the heart of the city of Napa.

There are many large creeks, brooks, and many springs in the hills, both mineral and otherwise.

(Information supplied by the Horticultural Commissioner).

Since 1910, hundreds of acres of fruit have come into bearing and hundreds of acres have been set out. The plantings are chiefly confined to prunes and pears, which are the chief commercial crops of the county in agriculture. Grapes are the premier crop, there being some 13,000 acres of dry wine grapes in bearing. About two-thirds of the country taxes of the county are said to come out of the vineyards.

Large areas are being cut up and planted to trees, or are being farmed on a more scientific plan—the grain farms *per se*, becoming a thing of the past. Farmers in certain sections are also reviving their interest in sheep and this is bound to improve the farms where they are kept.

Peach orchards are on the decline, apples about stationary, but good prune land is being rapidly planted up and few first-class prune orchards in full bearing are for sale. A considerable acreage of pears is being planted continuously.

Dairying is on the increase in the county. The Napa State Hospital has recently completed a 200-cow plant, and many silos have been installed by different men the past two or three years. A cow testing association is organized for the purpose of improving the herds.

Napa County has no bonded indebtedness.

Napa beef cattle number about 20,000. Sheep and swine about 20,000.

NAPA COUNTY SUMMARY.

(Census 1910.)

Number of Farms Classified by Size.		Swine—	
Under 3 acres	14	Mature hogs	5,100
3 to 9 acres	136	Spring pigs	3,184
10 to 19 acres	223	Total	8,284
20 to 49 acres	355	Value	\$51,230
50 to 99 acres	226		
100 to 174 acres	226	Sheep—	
175 to 259 acres	92	Rams, ewes, and wethers	5,794
260 to 499 acres	112	Spring lambs	5,004
500 to 999 acres	84	Total	10,878
1,000 acres and over	72	Value	\$37,070
Total	1,537		
Total in 1900	1,536	Goats—	
Land and Farm Areas.		Number	556
Approximate land, acres	501,130	Value	\$1,822
Land in farms in 1910	360,580	Total value all domestic animals	\$1,065,340
Land in farms in 1900	319,327		
Improved land in farms in 1910	101,114	Poultry and bees—	
Improved land in farms in 1900	111,966	Poultry of all kinds	105,777
Woodland in farms	193,578	Value	\$61,777
Other unimproved land	65,988	Colonies of bees	824
		Value	\$1,842
Value of All Farm Property.			
Total value in 1910	\$18,082,006	Principal Crops.	
Total value in 1900	12,837,046		
Per cent increase 1900-1910	40.5		
Land in 1910	12,086,656	Corn	2,380 59,579
Land in 1900	8,925,780	Oats	1,305 22,155
Buildings in 1910	3,365,470	Wheat	4,124 50,671
Buildings in 1900	2,181,590	Barley	3,048 58,300
Implements and machinery in 1910	500,921	Kafir corn and millo maize	2 35
Implements and machinery in 1900	357,980	Dry edible beans	6 61
Domestic animals, poultry and bees in 1910	1,122,950	Potatoes	530 51,650
Domestic animals, poultry, and bees in 1900	871,606		
Domestic Animals on Farms and Ranges.		Hay and forage—	
Cattle*—		Timothy and clover mixed	10 15
Dairy cows	6,270	Clover alone	29 55
Other cows	3,945	Alfalfa	1,304 3,623
Yearling heifers	1,403	Other tame and cultivated	
Calves	2,518	grasses	496 413
Yearling steers and bulls	758	Wild, salt, or prairie grasses	303 627
Other steers and bulls	937	Grains cut green	23,764 34,503
Total	15,866	All other hay and forage	165 285
Value	*\$395,731	Totals	26,061 39,321
Horses—		Poultry products—	
Mature horses	5,145	Poultry raised, number	105,423
Yearling colts	523	Eggs produced, dozen	623,159
Spring colts	237	Value poultry and eggs produced	\$213,008
Total	5,910	Honey and wax—	
Value	\$540,055	Honey produced, pounds	3,330
Mules—		Wax produced, pounds	304
Mature mules	245	Value of honey and wax produced	\$942
Yearling colts	18	Wool—	
Spring colts	9	Wool, fleeces shorn	9,955
Total	372	Mohair and goat hair, fleeces shorn	133
Value	\$37,970	Value wool and mohair produced	\$7,196
Asses and burros—		Special crops—	
Number	10	Potatoes, acres	530
Value	\$1,515	All other vegetables, acres	428

*Includes animals, age and sex not specified.

NAPA COUNTY SUMMARY—Continued.

Orchard fruits—	Number bearing trees		Irrigation.	
Apples	41,801		Number of farms irrigated in 1909.....	26
Apricots	16,963		Acres irrigated in 1909.....	1,191
Cherries	16,965		Acreage enterprises were capable of irrigating in 1910.....	2,035
Peaches and nectarines.....	71,080		Acreage included in projects.....	2,443
Pears	50,210		Main ditches, number.....	26
Prunes and plums.....	299,613		Length, miles.....	8
Total	497,391		Laterals, number.....	3
			Length, miles.....	8
			Pumped wells, number.....	2
Tropical fruits—	Number bearing trees		Cost of irrigation enterprises up to July 1, 1910.....	\$53,948
Figs	1,234		Average cost per acre irrigation enterprises were capable of irrigat- ing in 1910.....	26.51
Lemons	258			
Oranges	1,192			
Pomeelos	9			
Olives	20,176			
Total	22,351			
Grapevines—				
Number in bearing.....	3,596,338			
Small fruits—				
Strawberries, acres.....	22			
Blackberries and dewberries, acres.....	26			
All others, acres.....	11			
Total	59			
Nuts—	Number bearing trees			
Almonds	1,325			
Pecans	10			
Walnuts	1,105			
Total	2,768			

Mineral Production in 1916.		
Substance	Amount	Value
Chromite, tons.....	715	\$11,559
"Granite" (tuff), cu. ft.....	119,500	5,500
Magnetite, tons.....	13,990	108,556
Mineral water, gallons.....	152,764	93,370
Quicksilver, flasks.....	1,150	107,525
Stone, miscellaneous.....		88,441
Other minerals.....		693,596
Total		\$1,078,537
Number of mineral springs.....		14

*Includes cement and sandstone.

NEVADA COUNTY.

Date of creation, April 25, 1851.

	1880	1890	1910	1915 (estimated)
Land area, 974 square miles.	Population-- 17,369	17,789	14,955	-----
County seat, Nevada City.	Population-- 2,524	3,250	2,689	3,000
Population per square mile, 15.4.				
	Highest	Lowest	Inches	Inches
Elevation, 2,850 feet.	1916: Temperature-- 98	9	Rainfall-- 57.33	Snow-- 81.5
	1917: Temperature-- 99	12	Rainfall-- 25.71	Snow-- 32.5

Nevada County is situated in that portion of the state generally known as northern California, although its county seat, Nevada City, is but 60 miles from Sacramento. It is bounded on the north by Sierra County, on the east by the state line between California and Nevada, on the south by Placer County, and on the west by Yuba County. From the Yuba County line, Nevada County is hemmed in by the Yuba and Bear rivers until their sources are reached. The South Yuba River heads in the high Sierras and runs across the county almost its entire length from east to west.

On the rolling foothills of the western portion, where snow and frost are seldom seen, the elevation is slightly above the sea level, while along the eastern boundaries rise the snow-capped peaks of the Sierra Nevada to an elevation of nearly 8,000 feet.

In the Chicago Park section, between Colfax and Grass Valley, the soil is particularly adapted to the culture of Bartlett pears and Hungarian prunes, both of which are grown without irrigation.

In the southwestern portion of the county, where there is an abundance of water, the farmers are turning their attention to dairying.

In the production of gold, Nevada County since 1849 has been a large producer, in 1916 being first with the production of \$3,669,878. Some of the mines are working at a depth of 4,000 feet, and have proven conclusively that in every instance where depth has been attained the ore bodies and the values are equally distributed.

NEVADA COUNTY SUMMARY.

(Census 1910.)

Number of Farms Classified by Size.		Value of All Farm Property.	
Under 3 acres	7	Total value in 1910.....	\$3,022,695
3 to 9 acres	61	Total value in 1900.....	1,947,540
10 to 19 acres.....	99	Per cent increase 1900-1910.....	55.2
20 to 49 acres.....	77	Land in 1910.....	1,817,417
50 to 99 acres.....	69	Land in 1900.....	1,116,980
100 to 174 acres.....	88	Buildings in 1910.....	684,400
175 to 259 acres.....	53	Buildings in 1900.....	447,640
260 to 499 acres.....	84	Implements and machinery in 1910..	123,267
500 to 999 acres.....	41	Implements and machinery in 1900..	102,910
1,000 acres and over.....	28	Domestic animals, poultry and bees in 1910.....	408,011
Total	544	Domestic animals, poultry and bees in 1900.....	220,030
Total in 1900.....	522	Domestic Animals on Farms and Ranges.	
Land and Farm Areas.		Cattle*—	
Approximate land, acres.....	623,800	Dairy cows	2,265
Land in farms in 1910.....	175,396	Other cows	2,950
Land in farms in 1900.....	120,743	Yearling heifers	823
Improved land in farms in 1910.....	24,542	Calves	1,069
Improved land in farms in 1900.....	24,898	Yearling steers and bulls.....	465
Woodland in farms.....	48,449	Other steers and bulls.....	265
Other unimproved land.....	102,407	Total	8,606
		Value	\$174,097

*Includes animals, age and sex not specified.

NEVADA COUNTY SUMMARY—Continued.

Horses—			Special crops—		
Mature horses	1,880		Potatoes, acres	106	
Yearling colts	124		Sweet potatoes, acres	1	
Spring colts	70		All other vegetables, acres	231	
Total	2,074		Sugar beets, acres	30	
Value	\$361,189				
Mules—			Orchard fruits—		
Mature mules	57		Number bearing trees		
Yearling colts	11		Apples	20,223	
Total	68		Apricots	193	
Value	\$5,945		Cherries	1,727	
Asses and burros—			Peaches and nectarines	17,873	
Number	10		Pears	36,800	
Value	\$205		Prunes and plums	6,965	
Swine—			Total	84,250	
Mature hogs	1,067				
Spring pigs	749		Tropical fruits—		
Total	1,816		Number bearing trees		
Value	\$12,603		Figs	1,468	
Sheep—			Lemons	6	
Rams, ewes and wethers	6,553		Oranges	364	
Spring lambs	4,309		Pomeles	2	
Total	11,162		Olives	419	
Value	\$34,960		Total	2,311	
Goats—			Grapevines—		
Number	2,198		Number in bearing	94,388	
Value	\$4,736				
Total value all domestic animals	\$393,204		Small fruits—		
Poultry and bees—			Strawberries, acres	4	
Poultry of all kinds	23,482		Blackberries and dewberries, acres	15	
Value	\$12,731		All others, acres	36	
Colonies of bees	260		Total acres	55	
Value	\$1,076				
Principal Crops.			Nuts—		
	Acres	Bushels	Number bearing trees		
Corn	5	208	Almonds	1,825	
Oats	119	1,359	Pecans	10	
Wheat	95	1,279	Walnuts	1,106	
Barley	30	249	Total	2,763	
Dry edible beans	1	18			
Potatoes	106	12,733	Irrigation.		
Hay and forage—	Acres	Tons	Number of farms irrigated in 1909	300	
Timothy alone	55	56	Acres irrigated in 1909	3,589	
Timothy and clover mixed	297	390	Acres enterprises were capable of irrigating in 1910	4,250	
Clover alone	221	459	Acres included in projects	5,267	
Alfalfa	492	1,114	Main ditches, number	110	
Other tame and cultivated grasses	887	1,480	Length, miles	236	
Wild, salt, or prairie grasses	1,708	1,065	Laterals, number	46	
Grains cut green	5,008	4,191	Length, miles	32	
All other hay and forage	29	118	Pumped wells, number	5	
Totals	8,725	9,497	Cost of irrigation enterprises up to July 1, 1910	\$1,569,028	
Poultry products—			Average cost per acre irrigation enterprises were capable of irrigating in 1910	\$303.40	
Poultry raised, number	35,776				
Eggs produced, dozen	150,506		Mineral Production in 1916.		
Value poultry and eggs produced	\$68,612		Substance	Amount	Value
Honey and wax—			Chromite, tons	961	\$12,795
Honey produced, pounds	5,452		Copper, pounds	3,487	858
Wax produced, pounds	42		Gold		3,630,578
Value of honey and wax produced	\$779		Granite, cu. ft.	100	100
Wool—			Lead, pounds	1,036	71
Wool, fleeces shorn	10,607		Silver		35,741
Mohair and goat hair, fleeces shorn	1,043		Stone, miscellaneous		1,225
Value wool and mohair produced	\$3,383		Other minerals*		23,475
			Total		\$3,744,148
			Number of mineral springs		2

*Includes manganese, platinum and tungsten.

ORANGE COUNTY.

Date of creation, March 11, 1889.

	1890	1900	1910	1916 (estimated)
Land area, 795 square miles.	Population.. 13,589	19,096	34,436	-----
County seat, Santa Ana (city).	Population.. 1,456	3,628	8,429	10,627
Population per square mile, 43.3.				

Yorba Linda (Station):	Highest	Lowest	Inches	Inches
Elevation, 405 feet.	1916: Temperature...101	29	Rainfall...22.42	Snow... 6.0
Santa Ana, 133 feet.	1917: Temperature...112	32	Rainfall... 5.41	Snow... 9

Orange County is bounded on the north by Los Angeles County, on the east by San Bernardino and Riverside counties, on the south by San Diego County, and on the west by the Pacific Ocean. The Santa Ana River enters the county on the northeast boundary and empties into Newport Bay, furnishing irrigating water to the Anaheim Union Water Company and Santa Ana Valley Irrigating Company. The Santiago Creek furnishes water to and along the foothills east of Orange.

East Newport, Balboa, Newport Beach, and Port Orange are situated on Newport Bay, which is the best shipping point of the county. The county is one of the largest producers of oranges, of which a large acreage has been planted in recent years. There is also a considerable acreage in olives. The first raisin grapevines in southern California were planted in this county by McPherson Bros. in 1872, and the first raisins produced in 1875, but the vines were killed in 1888 by the Anaheim disease.

The county is one of the largest producers of lima beans, and also of sugar beets, the county having no less than five factories, with a total daily slicing capacity of upwards of 3,000 tons. At one time celery was grown on a large scale, but the acreage in the latter is being reduced, as growers find that beans and sugar beets pay better.

ORANGE COUNTY SUMMARY.

(Census 1910.)

Number of Farms Classified by Size.		Value of All Farm Property.	
Under 3 acres	28	Total value in 1910.....	\$64,357,392
3 to 9 acres	531	Total value in 1900.....	22,946,595
10 to 19 acres	803	Per cent increase 1900-1910.....	188.9
20 to 49 acres.....	1,043	Land in 1910.....	55,962,755
50 to 99 acres.....	351	Land in 1900.....	18,533,600
100 to 174 acres.....	175	Buildings in 1910.....	4,680,755
175 to 259 acres.....	60	Buildings in 1900.....	2,177,040
260 to 499 acres.....	86	Implements and machinery in 1910..	1,149,232
500 to 999 acres.....	52	Implements and machinery in 1900..	450,550
1,000 acres and over.....	37	Domestic animals, poultry, and bees in 1910.....	2,506,000
Total	3,165	Domestic animals, poultry, and bees in 1900.....	1,179,415
Total in 1900.....	2,388	Domestic Animals on Farms and Ranges.	
Land and Farm Areas.		Cattle—	
Approximate land, acres.....	508,800	Dairy cows	6,194
Land in farms in 1910.....	371,692	Other cows	4,473
Land in farms in 1900.....	*500,436	Yearling heifers	2,134
Improved land in farms in 1910.....	189,463	Calves	2,351
Improved land in farms in 1900.....	236,847	Yearling steers and bulls.....	1,168
Woodland in farms.....	4,476	Other steers and bulls.....	2,000
Other unimproved land.....	177,758	Total	18,390
		Value	\$508,511

*By an error the acreage was reported in 1900 as 599,436, instead of 425,277.

ORANGE COUNTY SUMMARY—Continued.

Horses—		
Mature horses	9,590	
Yearling colts	700	
Spring colts	235	
Total	10,565	
Value	\$1,833,440	
Mules—		
Mature mules	2,223	
Yearling colts	88	
Spring colts	7	
Total	2,398	
Value	\$396,360	
Asses and burros—		
Number	25	
Value	\$1,195	
Swine—		
Mature hogs	2,385	
Spring pigs	2,183	
Total	4,448	
Value	\$52,959	
Sheep—		
Rams, ewes and wethers	31,802	
Spring lambs	11,876	
Total	43,678	
Value	\$176,893	
Goats—		
Number	422	
Value	\$1,320	
Total value all domestic animals	\$3,453,878	

Poultry and bees—		
Poultry of all kinds	186,746	
Value	\$125,423	
Colonies of bees	5,159	
Value	\$16,779	

Principal Crops.

	Acres	Bushels
Corn	3,054	91,643
Oats	966	30,853
Wheat	793	10,797
Barley	27,384	671,526
Kafir corn and milo maize	189	3,557
Dry edible beans	21,186	402,951
Potatoes	1,770	127,867
Hay and forage—		
Alfalfa	5,304	23,139
Other tame and cultivated grasses	6,128	8,177
Wild, salt, or prairie grasses	65	65
Grains cut green	35,763	53,045
All other hay and forage	401	8,229
Totals	47,651	87,655

Poultry products—		
Poultry raised, number	229,563	
Eggs produced, dozen	1,198,290	
Value poultry and eggs produced	\$414,692	
Honey and wax—		
Honey produced, pounds	325,656	
Wax produced, pounds	2,764	
Value of honey and wax produced	\$18,525	

Wool—		
Wool, fleeces shorn	62,072	
Value of wool and mohair produced	\$51,474	
Special crops—		
Potatoes, acres	1,770	
Sweet potatoes, acres	484	
All other vegetables, acres	3,785	
Sugar beets, acres	10,275	
Orchard fruits—		
	Number bearing trees	
Apples	11,992	
Apricots	129,852	
Cherries	23	
Peaches and nectarines	12,461	
Pears	2,100	
Prunes and plums	4,569	
Total	160,097	
Tropical fruits—		
	Number bearing trees	
Figs	1,066	
Lemons	46,954	
Oranges	478,272	
Pomeelos	677	
Olives	67,046	
Total	597,283	
Grapevines—		
Number in bearing	282,692	
Small fruits—		
Strawberries, acres	76	
Blackberries and dewberries, acres	43	
All others, acres	86	
Total	205	
Nuts—		
	Number bearing trees	
Almonds	11,539	
Pecans	2	
Walnuts	535	
Total	12,076	

Irrigation.

Number of farms irrigated in 1909	2,215
Acres irrigated in 1909	55,056
Acresage enterprises were capable of irrigating in 1910	63,486
Acresage included in projects	71,444
Main ditches, number	309
Length, miles	180
Laterals, number	115
Length, miles	246
Flowing wells, number	588
Pumped wells, number	580
Cost of irrigation enterprises up to July 1, 1910	\$1,948,246
Average cost per acre irrigation enterprises were capable of irrigating in 1910	\$30.69

Mineral Production in 1916.

Substance	Amount	Value
Brick, M	1,186	\$3,300
Natural gas, M cu. ft.	2,278,922	139,281
Petroleum, barrels	13,198,561	8,760,006
Stone, miscellaneous		3,773
Other minerals		3,006
Total		\$9,905,086
Number of mineral springs	2	

PLACER COUNTY.

Date of creation, April 25, 1851.

	1890	1900	1910	1915 (estimated)
Land area, 1,395 square miles.	Population-- 15,101	15,786	18,237	-----
County seat, Auburn (city).	Population-- 1,595	2,060	2,376	2,366
Population per square mile, 13.1.				
	Highest	Lowest	Inches	Inches
Elevation, 1,360 feet.	1916: Temperature...103	24	Rainfall...32.77	Snow... 9.5
	1917: Temperature...105	21	Rainfall...24.83	Snow... 2.3

Placer County is about 100 miles long and of varying widths, from 10 to 30 miles, the course and distance being defined by the course of the rivers which mark its boundaries. It extends from about eight miles from the Sacramento River to the summit of the Sierra Nevada Mountains. Just above Auburn, between the Bear and American rivers, the county is very narrow, being about eight miles across. Above Auburn it widens out into the two divides lying between the Bear River and the Middle Fork of the American River. These are known as the Dutch Flat, or Railroad Divide, and the Forest Hill Divide. The southwestern portion is more regular in shape than the part just described. This section contains the foothill and level agricultural lands.

The entire extent faces toward the west, extending from an altitude of some 40 feet on the plains in the western portion to over 7,000 feet at its eastern boundary line. At the eastern boundary, separating it from the state of Nevada, is Lake Tahoe, one of the most picturesque lakes in America.

The soil of the western, or valley, portion is of the same general alluvial composition as all the soil in the Sacramento Valley, and is well adapted to the growth of grain. The low foothills near Lincoln are excellent for the grape.

Placer County holds a foremost position among the fruit producers. Peaches have been grown for years, and oranges and olives are also produced. In the production of plums, the county ranks above all others, and also produces large crops of pears, cherries, berries and table grapes.

The olive industry is a successful one in this county and both olive oil and pickled olives are produced here.

Dairying and stock and poultry raising are successful industries. Butter making is carried on in the summer, the mountain ranges providing plenty of natural feed for the cattle.

Much sugar and yellow pine, fir, spruce, and cedar are found in the mountains, and the lumber output from that section has been very large for many years. Oak and scrub pine abound all over the foothills and fuel is plentiful.

In 1916, the value of mineral products was \$1,042,629, including gold of the value of \$428,400, copper \$353,610, silver \$24,928, and chromite \$11,956.

PLACER COUNTY SUMMARY.

(Census 1910.)

Number of Farms Classified by Size.			
Under 3 acres	2	Asses and burros—	
3 to 9 acres	52	Number	66
10 to 19 acres	109	Value	\$1,529
20 to 49 acres	239	Swine—	
50 to 99 acres	206	Mature hogs	1,332
100 to 174 acres	174	Spring pigs	1,565
175 to 259 acres	69	Total	2,897
260 to 499 acres	75	Value	\$23,785
500 to 999 acres	50	Sheep—	
1,000 acres and over	36	Rams, ewes and wethers	15,142
Total	1,062	Spring lambs	9,326
Total in 1900	1,076	Total	24,468
		Value	\$68,716
Land and Farm Areas.		Goats—	
Approximate land, acres	899,800	Number	1,542
Land in farms in 1910	243,080	Value	\$3,455
Land in farms in 1900	440,371	Total value all domestic animals	\$757,494
Improved land in farms in 1910	98,608	Poultry and bees—	
Improved land in farms in 1900	131,063	Poultry of all kinds	43,619
Woodland in farms	32,194	Value	\$36,714
Other unimproved land	117,278	Colonies of bees	697
		Value	\$2,356
Value of All Farm Property.		Principal Crops.	
Total value in 1910	\$10,224,101		
Total value in 1900	6,547,761		
Per cent increase 1900-1910	56.3		
Land in 1910	7,747,744		
Land in 1900	4,839,730		
Buildings in 1910	1,399,840		
Buildings in 1900	996,620		
Implements and machinery in 1910	330,083		
Implements and machinery in 1900	222,060		
Domestic animals, poultry and bees in 1910	766,424		
Domestic animals, poultry and bees in 1900	487,851		
Domestic Animals on Farms and Ranges.			
Cattle—			
Dairy cows	2,421		
Other cows	2,238		
Yearling heifers	602		
Calves	1,204		
Yearling steers and bulls	423		
Other steers and bulls	532		
Total	7,510		
Value	\$153,827		
Horses—			
Mature horses	3,762		
Yearling colts	294		
Spring colts	137		
Total	4,193		
Value	\$308,602		
Mules—			
Mature mules	459		
Yearling colts	13		
Spring colts	26		
Total	498		
Value	\$68,460		

*Includes animals, age and sex not specified.

PLACER COUNTY SUMMARY—Continued.

		Irrigation.	
Orchard fruits—	Number bearing trees	Number of farms irrigated in 1900..	615
Apples	42,704	Acres irrigated in 1900.....	16,845
Apricots	4,002	Acres enterprises were capable of irrigating in 1910.....	23,365
Cherries	31,300	Acresage included in projects.....	61,751
Peaches and nectarines.....	633,824	Main ditches, number.....	35
Pears	142,990	Length, miles	124
Prunes and plums.....	279,766	Laterals, number	46
Total	1,190,074	Length, miles	106
		Pumped wells, number.....	2
Tropical fruits—	Number bearing trees	Cost of irrigation enterprises up to July 1, 1910	\$2,793,740
Figs	3,463	Average cost per acre irrigation enterprises were capable of irrigating in 1910.....	\$119.78
Lemons	714		
Oranges	26,921		
Pomeles	230		
Olives	26,306		
Total	59,906		
Grapevines—			
Number in bearing.....	1,340,132		
Small fruits—		Mineral Production in 1916.	
Strawberries, acres	433	Substance	Amount Value
Blackberries and dewberries, acres	62	Chromite, tons	774 \$11,968
All others, acres.....	87	Brick, M	2,540 79,600
Total	582	Clay (pottery), tons	29,018 26,320
		Copper, pounds	1,437,441 353,610
Nuts—	Number bearing trees	Gold	423,400
Almonds	11,539	Granite	60,961
Pecans	2	Silver	24,226
Walnuts	536	Stone, miscellaneous	77,928
Total	12,122	Other minerals†	10,543
		Total	\$1,042,639
		Number of mineral springs.....	12

†Includes limestone, lead and magnesite.

PLUMAS COUNTY.

Date of creation, March 18, 1854.

				1890	1900	1910
Land area, 2,594 square miles.	Population-----			4,983	4,657	5,259
County seat, Quincy (township).	Population-----			818	748	884
Population per square mile, 2.0.						
		Highest	Lowest	Inches		Inches
Elevation, 3,400 feet.	1916: Temperature---	96	-8	Rainfall---	49.25	Snow.187.0
	1917: Temperature---	99	-12	Rainfall---	25.72	Snow. 55.0

Plumas County is situated in the northeastern part of California. It is bounded on the north by Shasta and Lassen counties, on the south by Yuba, Butte and Sierra counties, on the east by Lassen, and on the west by Butte and Tehama counties. In the lowest portion the elevation is about 1,800 feet, but sloping gradually from its valleys, it rises gently to an elevation of its mountain ridges of over 7,000 feet. Although a great deal of valley lands have been cultivated, there is still a large acreage of uncleared land.

Plumas County has the largest area of timber land of any county in California. It is practically one entire sweep of forest land from one end to the other. While the greater part of it has been in reserve, the timber on it has been taken up, and the many sawmills throughout its mountains are turning out thousands of feet of white, sugar pine and spruce lumber.

Running in numerous channels through all of its mountain ridges, the ancient river beds afford large stores of gold. There have been large quantities of gold taken from the mines of Plumas. There has also been a great deal of surface mining done in times past. The mining section of Plumas is scattered throughout the entire county. In 1916 the value of copper produced was \$1,213,500, gold \$133,385, and silver \$46,542.

Hot Springs Valley, near the northwest corner of the county, contains scores of rumbling springs from which issue steam, or in which hot mud is bubbling, suggesting nearness to an active volcano. To the southwest of this valley are the geyser and a lake of boiling mud.

PLUMAS COUNTY SUMMARY.

(Census 1910.)

Number of Farms Classified by Size.		Value of All Farm Property.	
3 to 9 acres	6	Total value in 1910.....	\$3,962,965
10 to 19 acres.....	5	Total value in 1900.....	2,230,576
20 to 49 acres.....	9	Per cent increase 1900-1910.....	50.1
50 to 99 acres.....	12	Land in 1910.....	2,201,054
100 to 174 acres.....	45	Land in 1900.....	1,811,530
175 to 259 acres.....	19	Buildings in 1910.....	582,156
260 to 499 acres.....	37	Buildings in 1900.....	387,010
500 to 999 acres.....	46	Implements and machinery in 1910.....	128,300
1,000 acres and over.....	42	Implements and machinery in 1900.....	97,240
Total	221	Domestic animals, poultry and bees	
Total in 1900.....	207	in 1910	505,845
		Domestic animals, poultry and bees	
		in 1900	544,006
		Domestic Animals on Farms and Ranges.	
		Cattle—	
		Dairy cows	3,487
		Other cows	1,954
		Yearling heifers	1,561
		Calves	1,596
		Yearling steers and bulls.....	1,468
		Other steers and bulls.....	1,896
		Total	11,401
		Value	\$279,651
Land and Farm Areas.			
Approximate land, acres.....	1,600,160		
Land in farms in 1910.....	134,259		
Land in farms in 1900.....	184,449		
Improved land in farms in 1910.....	54,281		
Improved land in farms in 1900.....	57,251		
Woodland in farms.....	27,285		
Other unimproved land.....	52,740		

PLUMAS COUNTY SUMMARY—Continued.

Horses—				Honey and wax—			
Mature horses	1,770			Honey produced, pounds.....	2,280		
Yearling colts	2			Wax produced, pounds.....	5		
Spring colts	68			Value of honey and wax produced..	\$308		
Total	2,044			Wool—			
Value	\$200,409			Wool, fleeces shorn.....	503		
Mules—				Value of wool and mohair produced	\$787		
Mature mules	41			Special crops—			
Yearling colts	2			Potatoes, acres	100		
Total	43			All other vegetables, acres.....	97		
Value	\$4,435			Orchard fruits—			
Asses and burros—				Apples	Number bearing trees	2,584	
Number	5			Apriots	18		
Value	\$1,500			Cherries	65		
Swine—				Peaches and nectarines.....	184		
Mature hogs	605			Pears	261		
Spring pigs	744			Prunes and plums.....	510		
Total	1,409			Total	4,574		
Value	\$8,923			Tropical fruits—			
Sheep—				Figs	Number bearing trees	6	
Rams, ewes and wethers.....	845			Olives	6		
Spring lambs	314			Total	12		
Total	1,159			Small fruits—			
Value	\$4,080			Strawberries, acres	6		
Goats—				Blackberries and dewberries, acres	1		
Number	10			All others, acres.....	6		
Value	\$32			Total	13		
Total value all domestic animals	\$499,089			Nuts—			
Poultry and bees—				Walnuts	Number bearing trees	4	
Poultry of all kinds.....	9,649			Irrigation.			
Value	\$6,272			Number of farms irrigated in 1909...	151		
Colonies of bees.....	121			Acres irrigated in 1909.....	36,602		
Value	\$484			Acresage enterprises were capable of			
Principal Crops.				irrigating in 1910.....	37,529		
Oats	Acres	Bushels		Acresage included in projects.....	37,901		
Wheat	2,193	75,606		Main ditches, number.....	147		
Barley	766	10,313		Length, miles	201		
Potatoes	1,260	12,216		Laterals, number	62		
	100	12,638		Length, miles	16		
Hay and forage—				Flowing wells, number.....	3		
Timothy alone	Acres	Tons		Cost of irrigation enterprises up to			
Timothy and clover mixed..	851	1,084		July 1, 1910	\$107,118		
Clover alone	5,239	7,191		Average cost per acre irrigation			
Alfalfa	155	226		enterprises were capable of irrigat-			
Other tame and cultivated	711	1,104		ing in 1910.....	\$2.26		
grasses	2,402	2,892		Mineral Production in 1916.			
Wild, salt, or prairie grasses	19,794	20,425		Substance	Amount	Value	
Grains cut green.....	985	1,031		Copper, pounds	4,962,928	\$1,213,500	
All other hay and forage...	15	25		Gold		133,365	
Totals	30,152	34,088		Silver		46,542	
Poultry products—				Stone, miscellaneous		1,968	
Poultry raised, number.....	15,163			Other minerals*		3,920	
Eggs produced, dozens.....	48,511			Total		\$1,369,335	
Value of poultry and eggs produced	\$22,206			Number of mineral springs.....		16	

*Includes chromite, granite and molybdenum.

RIVERSIDE COUNTY.

Date of creation, March 11, 1893.

	1890	1900	1910	1916 (estimated)
Land area, 7,240 square miles.				
County seat, Riverside (city).	Population--	17,897	34,696	-----
Population per square mile, 4.8.	Population--	4,688	7,973	15,212
				19,763
	Highest	Lowest	Inches	Inches
Elevation, 851 feet.	1916: Temperature...105	25	Rainfall...16.60	Snow... T
	1917: Temperature...118	28	Rainfall... 5.46	Snow... T

Riverside County was formed in 1893 from the southwestern part of San Bernardino and the northern part of San Diego counties. It is about 200 miles long by 40 miles wide, and embraces most varied geographical and topographical features, climate, scenery, soil, agricultural, horticultural, and mineral resources. It contains within its borders one of the highest mountains in southern California and part of Salton Sea, 250 feet below sea level.

The principal rivers of the county are the Colorado, which forms its eastern boundary; the Santa Ana, having its head in the San Bernardino Range of mountains, flowing through the northwestern part of the county, furnishing irrigation for a large area of land; the San Jacinto, having its source in the San Jacinto Range, flowing through the San Jacinto, Hemet, and Perris valleys, and forming Lake Elsinore.

The central and greater part of the eastern portion of the county is desert, but known to be heavily mineralized. The high cost of freight, fuel, and scarcity of water, making prospecting dangerous, all combine to retard mining developments.

The San Jacinto and Hemet valleys, situated about 45 miles southeast of Riverside City, at the base of the San Jacinto Mountains, are excellently adapted to diversified farming, and the foothills to stock grazing. The San Jacinto Valley is watered by numerous flowing wells and the Hemet Valley by the great Hemet dam, the largest piece of solid masonry in the West, forming a reservoir filled with pure mountain water.

The progress of the county has been practically confined to its northwest corner, which embraces one of the largest orange-growing districts in the state. It is supplied by one of the best and most complete irrigating systems in the state. The entire western portion is being brought under cultivation from the rapid development of artesian wells. There is also a large acreage in lemons. A factory has been established at Riverside for the manufacture of orange juice, which has proved entirely successful. The capacity of the plant is 4,000 pounds of culls per day, producing approximately 2,000 pint bottles of orange syrup.

During the last fifteen years dates have been grown in an experimental way, but the industry is now well established. In the Coachella Valley and the country around Palo Verde they are being extensively cultivated, but the expense is greater than for other orchard crops, owing to the cost of the offshoots. There are about 5,000 palms shortly coming into bearing. There were perhaps 3,500 trees bearing in 1916 in a commercial way, not counting the young trees with only a few pounds, and about 30,000 pounds of dates were harvested.

The Palo Verde Valley, along the Colorado River, in the eastern end of Riverside County, produced several thousand bales of cotton last season, with indications of a largely increased acreage in the future.

The date industry has become firmly established in the Coachella Valley.

In the Arlington district, which is the Petaluma of southern California, the latest figures show about 50,000 laying hens, producing about 6,000,000 eggs per year.

(Information supplied by the County Horticultural Commissioner.)

Districts Where the Various Fruits Are Mostly Grown, 1916-1917.

	Acres		Acres
Oranges—		Grapes—	
Riverside District, including Arling-		Wineville District	2,000
ton, Highgrove and West River-		Coachella Valley	330
side	13,353	Olives—	
Corona	4,418	Banning	10
Hemet	1,080	Beaumont	65
Perris	700	Elsinore	802
Lemons—		Perris	255
Riverside District	2,806	Hemet	400
Corona	2,492	Corona	100
Avocado—		Peaches—	
Riverside District	37	Banning	623
Almonds—		Beaumont	131
Banning	1,312	Corona	295
Elsinore	129	Perris	135
Apples—		Hemet	1,376
Beaumont	1,947	San Jacinto	132
Banning	381	Pears—	
Yucalpa District	495	Beaumont	253
Hemet	870	Perris	170
Apricots—		Hemet	150
Banning	258	San Jacinto	36
Beaumont	56	Elsinore	40
Corona	280	Prunes—	
Elsinore	619	Banning	458
Hemet	4,890	Walnuts—	
San Jacinto	631	Elsinore	340
Cherries—		Perris	40
Beaumont	400	Hemet	1,000
		San Jacinto	96
		Dates—	
		Coachella Valley	300

Principal Crops, 1917.

	Acres		Acres
Alfalfa	33,680	Potatoes, sweet	730
Cotton	10,000	Corn, Indian	1,000
Beans	18,871	Sorghums	4,308
Beets	5,168	Onions	700
Hay and grain	90,980	Tomatoes	150
Potatoes, Irish	1,781		

RIVERSIDE COUNTY SUMMARY.

(Census 1910.)

Number of Farms Classified by Size.			
Under 3 acres	42	Swine—	
3 to 9 acres	408	Mature hogs	3,892
10 to 19 acres	593	Spring pigs	2,368
20 to 49 acres	614	Total	6,150
50 to 99 acres	298	Value	\$44,770
100 to 174 acres	298		
175 to 259 acres	99	Sheep—	
260 to 499 acres	106	Hams, ewes, and wethers	5,599
500 to 999 acres	104	Spring lambs	1,420
1,000 acres and over	51	Total	7,000
Total	3,083	Value	\$30,167
Total in 1900	2,340		
Land and Farm Areas.		Goats—	
Approximate land, acres	4,683,900	Number	924
Land in farms in 1910	520,806	Value	\$3,712
Land in farms in 1900	427,097	Total value all domestic animals	\$1,937,237
Improved land in farms in 1910	278,151		
Improved land in farms in 1900	216,083	Poultry and bees—	
Woodland in farms	30,221	Poultry of all kinds	84,336
Other unimproved land	212,424	Value	\$51,742
Value of All Farm Property.		Colonies of bees	18,900
Total value in 1910	\$46,203,795	Value	\$62,286
Total value in 1900	21,644,081		
Per cent increase 1900-1910	113.5	Principal Crops.	
Land in 1910	30,863,652		
Land in 1900	18,488,110	Corn	Acres 872 Bushels 12,421
Buildings in 1910	3,036,699	Oats	2,767 85,540
Buildings in 1900	1,969,850	Wheat	11,817 159,434
Implements and machinery in 1910	1,112,180	Barley	56,946 968,526
Implements and machinery in 1900	399,290	Kafr corn and milo maize	44 580
Domestic animals, poultry, and bees in 1910	2,061,295	Dry edible beans	50 192
Domestic animals, poultry, and bees in 1900	753,791	Potatoes	309 23,392
Domestic Animals on Farms and Ranges.			
Cattle—		Hay and forage—	Acres Tons
Dairy cows	5,235	Timothy alone	5 5
Other cows	4,449	Alfalfa	12,904 69,230
Yearling heifers	2,498	Other tame and cultivated	
Calves	2,306	grasses	795 2,000
Yearling steers and bulls	1,333	Wild, salt, or prairie grasses	14 15
Other steers and bulls	3,755	Grains cut green	73,965 69,235
Total	19,468	All other hay and forage	727 1,309
Value	\$484,083	Totals	88,430 141,794
Horses—		Poultry products—	
Mature horses	8,989	Poultry raised, number	95,767
Yearling colts	943	Eggs produced, dozen	438,099
Spring colts	408	Value poultry and eggs produced	\$183,490
Total	10,315		
Value	\$1,157,367	Honey and wax—	
Mules—		Honey produced, pounds	902,108
Mature mules	1,303	Wax produced, pounds	12,915
Yearling colts	83	Value honey and wax produced	\$63,337
Spring colts	43		
Total	1,429	Wool—	
Value	\$205,009	Wool, fleeces shorn	4,536
Asses and burros—		Mohair and goat hair, fleeces shorn	18
Number	88	Value wool and mohair produced	\$2,600
Value	\$9,050	Special crops—	
		Potatoes, acres	309
		Sweet potatoes, acres	57
		All other vegetables, acres	1,225
		Sugar beets, acres	4
		Number	

RIVERSIDE COUNTY SUMMARY—Continued.

Orchard fruits—		bearing trees	Irrigation.		
Apples	-----	10,577	Number of farms irrigated in 1909..	2,174	
Apricots	-----	88,080	Acres irrigated in 1909.....	71,438	
Cherries	-----	982	Acreage enterprises were capable of		
Peaches and nectarines	-----	72,983	irrigating in 1910.....	108,333	
Pears	-----	18,447	Acreage included in projects.....	210,452	
Prunes and plums	-----	34,867	Main ditches, number.....	301	
Total	-----	230,723	Length, miles.....	500	
			Laterals, number.....	282	
			Length, miles.....	268	
Tropical fruits—		Number	Flowing wells, number.....	583	
		bearing trees	Pumped wells, number.....	792	
Figs	-----	2,064	Cost of irrigation enterprises up to		
Lemons	-----	115,020	July 1, 1910.....	\$5,643,480	
Oranges	-----	1,021,967	Average cost per acre irrigation		
Pomeloes	-----	4,477	enterprises were capable of irrigat-		
Olives	-----	80,572	ing in 1910.....	54.72	
Total	-----	1,224,217			
Mineral Production in 1916.					
Grapevines—			Substance	Amount	Value
Number in bearing	-----	1,570,749	Brick, M.....	1,621	\$28,598
Small fruits—			Clay (pottery), tons.....	56,328	56,080
Strawberries, acres	-----	27	Copper, pounds.....	58,617	14,420
Blackberries and dewberries, acres	-----	28	Gold.....		7,555
All others, acres	-----	9	Granite, cubic feet.....	3,600	4,800
Total	-----	64	Gypsum, tons.....	4,220	8,240
			Lead, pounds.....	350	34
			Silica, tons.....	901	1,662
Nuts—		Number	Silver.....		338
		bearing trees	Stone, miscellaneous.....		150,555
Almonds	-----	21,789	Other minerals*.....		952,505
Pecans	-----	98			
Walnuts	-----	3,040	Total	-----	\$1,224,252
Total	-----	24,940	Number of mineral springs.....		23

*Includes cement, feldspar, magnesite, manganese, mineral water and potash.

SACRAMENTO COUNTY.

Date of creation, February 18, 1850.

	1890	1900	1910	1916 (estimated)
Land area, 983 square miles.	Population.. 40,339	45,915	67,806	-----
County seat, Sacramento (city).	Population.. 26,386	29,282	44,696	66,895
Population per square mile, 69.0.				
	Highest	Lowest	Inches	Inches
Elevation, 71 feet.	1916: Temperature...105	30	Rainfall...18.27	Snow... 3.5
	1917: Temperature...107	26	Rainfall... 8.92	Snow... 0

Sacramento County is one of the largest in the Sacramento Valley, as well as one of the oldest in the state, having been organized by the first legislature. Its principal cities and towns are: Sacramento, Folsom, Galt, Elk Grove, Fair Oaks, Courtland, Walnut Grove, Isleton, Franklin, and Consumnes.

Its area is almost all rich, alluvial plain, ranging from 30 to 125 feet above sea level, rising gradually from the rivers to meet the low, rolling foothills of the Sierra Nevada Mountains.

The Sacramento River is the longest and largest in the state, and is navigable from Red Bluff to San Francisco Bay, giving unexcelled transportation facilities, landing freight on deep water vessels at a minimum cost.

The American River rises in the upper Sierra and enters the county at the northeast corner among the low foothills, flowing in a south-westerly direction, and emptying into the Sacramento just north of the city of Sacramento.

The fish in the rivers are salmon, striped bass, sturgeon, pike, perch, catfish, shad, carp, and black bass.

Strawberries are marketed here eleven months in the year, and fresh vegetables are obtainable the year around. The largest asparagus beds in the state are within the confines of Sacramento County. Alfalfa grows luxuriantly without irrigation on the rich bottom lands.

The river districts are most prolific producers of beans. Egyptian corn, potatoes, asparagus, in fact, all kinds of vegetables thrive, many of them having two growing seasons.

Along the Sacramento, American, and Cosumnes rivers are some of the most productive hop fields in the United States. Hop culture on this coast dates back to 1858. It was early demonstrated that the soil and climate of Sacramento County are unsurpassed for hop culture. For thirty years Sacramento was the largest hop-growing county in the state.

Vegetable seeds are now grown in the county on a very extensive scale; in 1917 upwards of 4,000 acres were planted.

Sacramento County presents splendid opportunities to the live-stock breeder and the dairyman. There are a number of large creameries in the county and the largest and most modern dairy on the coast is located here. The climate is so temperate and mild that animals remain in the open air practically unsheltered the year round without hardship. The soil, because of its fertility, is peculiarly adapted to the growth of forage crops, especially alfalfa, which is at the same time one of the cheapest of stock feeds.

Hogs are raised generally by the farmers, and pedigreed Poland China, Berkshire, and Duroc Jersey swine are bred quite extensively and have proven very profitable.

Poultry raising has steadily increased in importance in the last few years. Elk Grove, Galt, Folsom, Rio Linda, and Perkins are among the principal poultry-raising districts.

There are a number of wineries in the county.

One of the largest rock-crushing plants is located in the county, supplying many thousands of tons of crushed rock for the many uses made of it.

THE WEALTH OF SACRAMENTO COUNTY.

The wealth of Sacramento County is increasing amazingly, as is indicated by the following statement taken from the records of the County Assessor. In 1910 the total assessed valuation of property in the county was \$58,620,075. In 1917 the total assessed valuation of property was \$100,792,444. This wonderful gain in values is due to the tremendous industrial development in all lines of endeavor and it is not unwise to estimate that the gain in material wealth will be in far greater proportion by the close of the European war, when much of the commerce of the world will be directed through the Panama Canal, thereby adding greatly to the population and development of all California and the Pacific Coast States.

While it must be apparent to the reader that there has been marked activity in the industrial life of Sacramento County and consequent rise in property values, it should be thoroughly understood that there has been no boom here and all values are based upon actual worth. Land in Sacramento County is valued on a basis of what it will produce.

Sacramento County is just a trifle smaller than the state of Rhode Island, its total area being 988 square miles. There is very little waste land in the county, now that practically all of the overflowed areas have been reclaimed. Most of the land is level; it rises gently eastward from the Sacramento River to the foothills of the Sierra Nevada Mountains on the eastern border of the county.

The population is estimated at 90,000. It will probably pass the 100,000 mark long before the next federal census is taken. That there is plenty of room for expansion is shown by figures on the density of population taken from the last official census. The rural population per square mile in 1910 was only 23.5.

The county has an excellent system of good roads. Two main trunk lines of the state highway pass through the county and state roads lead from Sacramento City in five different directions. The Lincoln Highway, the transcontinental road from New York to San Francisco, passes through Sacramento. One hundred twenty miles of new road are under construction at the present time.

The level condition of the county's surface renders motoring ideal. Most of the farmers of the county own motor cars, which they use for business and pleasure.

SACRAMENTO COUNTY SUMMARY.

(Census 1910.)

Number of Farms Classified by Size.			
Under 3 acres.....	12	Asses and burros—	
3 to 9 acres.....	167	Number	19
10 to 19 acres.....	237	Value	\$6,245
20 to 49 acres.....	321	Swine—	
50 to 99 acres.....	170	Mature hogs	6,421
100 to 174 acres.....	223	Spring pigs	4,084
175 to 259 acres.....	96	Total	10,455
260 to 499 acres.....	173	Value	\$73,278
500 to 999 acres.....	111	Sheep—	
1,000 acres and over.....	91	Rams, ewes and wethers.....	25,828
Total	1,901	Spring lambs	21,129
Total in 1900.....	1,892	Total	46,957
		Value	\$160,221
Land and Farm Areas.		Goats—	
Approximate land, acres.....	629,120	Number	89
Land in farms in 1910.....	473,044	Value	\$380
Land in farms in 1900*.....	668,426	Total value all domestic animals	\$2,187,810
Improved land in farms in 1910.....	275,682	Poultry and bees—	
Improved land in farms in 1900.....	327,159	Poultry of all kinds.....	116,556
Woodland in farms.....	20,964	Value	\$84,188
Other unimproved land.....	176,898	Colonies of bees.....	1,835
		Value	\$5,481
Value of All Farm Property.		Principal Crops.	
Total value in 1910.....	\$36,604,632		
Total value in 1900.....	19,326,626		
Per cent increase, 1900-1910.....	89.9		
Land in 1910.....	30,425,404		
Land in 1900.....	15,189,870		
Buildings in 1910.....	3,205,416		
Buildings in 1900.....	2,159,630		
Implements and machinery in 1910.....	786,338		
Implements and machinery in 1900.....	528,780		
Domestic animals, poultry and bees	2,277,479		
in 1910.....	1,448,346		
Domestic animals, poultry and bees			
in 1900.....			
Domestic Animals on Farms and Ranges.			
Cattle—			
Dairy cows	11,979		
Other cows	5,484		
Yearling heifers	3,195		
Calves	5,568		
Yearling steers and bulls.....	1,529		
Other steers and bulls.....	1,961		
Total	31,188		
Value	\$888,431		
Horses—			
Mature horses	8,770		
Yearling colts	773		
Spring colts	426		
Total	9,969		
Value	\$1,022,335		
Mules—			
Mature mules	708		
Yearling colts	80		
Spring colts	10		
Total	748		
Value	\$87,020		

*By an error the acreage in 1900 was reported to be 668,426, instead of 501,448.

†Includes animals, age and sex not specified.

Special crops—		Number bearing trees	
Potatoes, acres	1,406		
All other vegetables, acres	6,397		
Sugar beets, acres	7		
Orchard fruits—		Number bearing trees	
Apples	10,948		
Apricots	10,480		
Cherries	17,173		
Peaches and nectarines	99,635		
Pears	161,094		
Prunes and plums	206,558		
Total	506,961		
Tropical fruits—		Number bearing trees	
Figs	1,145		
Lemons	2,500		
Oranges	46,256		
Pomeelos	864		
Olives	34,077		
Total	84,863		
Grapevines—		Number in bearing	
		7,627,510	
Small fruits—			
Strawberries, acres	450		
Blackberries and dewberries, acres	52		
All others, acres	52		
Total	554		
Nuts—		Number bearing trees	
Almonds			66,372
Pecans			3
Walnuts			755
Total			67,156
Irrigation.			
Number of farms irrigated in 1909		1,053	
Acres irrigated in 1909		53,683	
Acreage enterprises were capable of irrigating in 1910		60,970	
Acreage included in projects		74,588	
Main ditches, number		218	
Length, miles		238	
Laterals, number		5	
Length, miles		8	
Pumped wells, number		1,108	
Cost of irrigation enterprises up to July 1, 1910		\$1,452,471	
Average cost per acre irrigation enterprises were capable of irrigating in 1910		20.76	
Mineral Production in 1916.			
Substance	Amount	Value	
Brick	8,924 M	\$91,615	
Gold		1,833,865	
Lead	227 lbs.	16	
Platinum	195 ounces	8,302	
Silver		3,578	
Stone, miscellaneous		194,718	
Other minerals*		46,000	
Total		\$2,178,674	

*Includes pottery, clay and natural gas.

SAN BENITO COUNTY.

Date of creation, February 12, 1874.

	1890	1900	1910	1915 (estimated)
Land area, 1,392 square miles.	Population.. 6,412	6,633	8,041	-----
County seat, Hollister (town).	Population.. 1,234	1,315	2,308	2,500
Population per square mile, 5.8.				
	Highest	Lowest	Inches	Inches
Elevation, 284 feet.	1916: Temperature...100	25	Rainfall...19.91	Snow... T
	1917: Temperature...103	22	Rainfall... 9.17	Snow... 0

The county extends from northwest to southeast about 60 miles, with a general width of 20 miles. The Gabilan Mountains on the southwest constitute the dividing line from Monterey County, and at their base flows northerly, the entire length, the San Benito River. Farther east the Tres Pinos forms another valley.

Irrigation is by gravity from the San Benito River and the Tres Pinos. This is supplemented by an extensive system of pumping from an apparently inexhaustible supply of underground flow, and further by artesian wells in the northern end of the county.

The lime industry, though once large, has ceased, awaiting better transportation facilities. The quicksilver product of the New Idria mines goes on unceasingly, in 1917 the production of quicksilver in the county amounted to 11,110 flasks valued at \$1,032,156.

Large deposits of potter's clay of superior quality lie in easy access.

SAN BENITO COUNTY SUMMARY.

(Census 1910.)

Number of Farms Classified by Size.		Domestic Animals on Farms and Ranges.	
Under 3 acres	7	Cattle*—	
3 to 9 acres	87	Dairy cows	4,886
10 to 19 acres	83	Other cows	11,804
20 to 49 acres	118	Yearling heifers	4,459
50 to 99 acres	98	Calves	5,804
100 to 174 acres	107	Yearling steers and bulls	4,151
175 to 259 acres	56	Other steers and bulls	3,987
260 to 499 acres	144		
500 to 999 acres	109	Total	39,768
1,000 acres and over	117	Value	\$289,680
Total	921	Horses—	
Total in 1900	907	Mature horses	6,921
		Yearling colts	955
		Spring colts	590
		Total	8,475
		Value	\$343,995
		Mules—	
		Mature mules	74
		Yearling colts	19
		Spring colts	3
		Total	96
		Value	\$11,145
		Asses and burros—	
		Number	29
		Value	945
		Swine—	
		Mature hogs	5,573
		Spring pigs	2,580
		Total	8,153
		Value	\$67,353

Land and Farm Areas.	
Approximate land, acres	890,880
Land in farms in 1910	544,801
Land in farms in 1900	513,719
Improved land in farms in 1910	186,573
Improved land in farms in 1900	169,698
Woodland in farms	52,466
Other unimproved land	305,282

Value of All Farm Property.	
Total value in 1910	\$14,968,867
Total value in 1900	9,117,058
Per cent increase 1900-1910	64.1
Land in 1910	11,272,156
Land in 1900	7,067,190
Buildings in 1910	1,336,855
Buildings in 1900	852,340
Implements and machinery in 1910	391,058
Implements and machinery in 1900	272,030
Domestic animals, poultry and bees in 1910	1,963,798
Domestic animals, poultry and bees in 1900	985,408

*Includes animals, age and sex not specified.

SAN BENITO COUNTY SUMMARY—Continued.

Domestic Animals on Farms and Ranges—Continued.			Orchard fruits—		Number bearing trees
Sheep—			Apples		26,568
Rams, ewes and wethers	10,635		Apricots		694
Spring lambs	4,511		Cherries		3,421
Total	15,146		Peaches and nectarines		12,301
Value	\$55,230		Pears		12,400
			Prunes and plums		91,066
Goats—			Total		207,587
Number	489				
Value	\$1,159		Tropical fruits—		Number bearing trees
Total value all domestic animals	\$1,909,896		Figs		122
			Lemons		5
Poultry and bees—			Oranges		42
Poultry of all kinds	95,289		Olives		4
Value	\$60,414		Total		179
Colonies of bees	1,177		Grapevines—		
Value	\$3,908		Number in bearing		177,976
Principal Crops.			Small fruits—		
	Acres	Bushels	Strawberries, acres		25
Corn	401	5,389	Blackberries and dewberries, acres		1
Oats	776	13,626	All others, acres		18
Wheat	4,451	57,585	Total		54
Barley	10,955	307,215			
Dry edible beans	59	677	Nuts—		
Potatoes	205	25,438	Almonds		6,958
Totals	16,847	410,080	Pecans		6
			Walnuts		1,369
Hay and forage—	Acres	Tons	Total		8,833
Alfalfa	1,940	7,700			
Other tame and cultivated grasses	440	680	Irrigation.		
Wild, salt, or prairie grasses	3,727	3,327	Number of farms irrigated in 1900		240
Grains cut green	57,319	70,489	Acres irrigated in 1908		7,186
All other hay and forage	683	1,784	Acreage enterprises were capable of irrigating in 1910		13,790
Totals	64,064	84,890	Acreage included in projects		20,067
Poultry products—			Main ditches, number		64
Poultry raised, number	79,550		Length, miles		61
Eggs produced, dozen	696,264		Laterals, number		12
Value poultry and eggs produced	\$326,891		Length, miles		33
Honey and wax—			Pumped wells, number		87
Honey produced, pounds	63,253		Cost of irrigation enterprises up to July 1, 1910		\$177,924
Wax produced, pounds	773		Average cost per acre irrigation enterprises were capable of irrigating in 1910		\$12.90
Value honey and wax produced	\$5,671		Mineral Production in 1916.		
Wool—			Substance	Amount	Value
Wool, fleeces shorn	19,487		Dolomite, tons	8,100	\$25,515
Mohair and goat hair, fleeces shorn	33		Quicksilver, flasks	11,110	1,032,156
Value wool and mohair produced	\$12,974		Stone, miscellaneous		155,250
Special crops—			Other minerals*		526
Potatoes, acres	205		Total		\$1,213,447
All other vegetables, acres	183		Number of mineral springs		1
Sugar beets, acres	233				

*Includes antimony and mineral water.

SAN BERNARDINO COUNTY.

Date of creation, April 26, 1853.

	1890	1900	1910	1916 (estimated)
Land area, 20,157 square miles.	Population.. 25,497	27,929	56,706	-----
County seat, San Bernardino (city).	Population.. 4,012	6,159	12,779	16,945
Population per square mile, 2.8.				

	Highest	Lowest	Inches	Inches
Elevation, 1,064 feet.	1916: Temperature...105	23	Rainfall...25.62	Snow... T
	1917: Temperature...116	26	Rainfall... 8.37	Snow... 0

San Bernardino is not only the largest county in California, but it is the largest in the United States. It is larger than New Hampshire, Vermont, and Rhode Island combined; larger than New Jersey, Delaware, Massachusetts and Rhode Island combined; very nearly as large as Massachusetts, Connecticut, and New Jersey. There are eight states whose area is less than that of this county.

San Bernardino County is in the southeastern part of the state. The greater portion is desert. In the north is the Mojave desert, and in the east the northern end of the Colorado desert, the arable portion being confined to the southwestern part—the San Bernardino Valley. This valley forms an almost perfect amphitheater, encircled by mountains and hills, open only on the west, allowing the sea breeze from the ocean to sweep its entire length.

Mount San Bernardino, from its distinctive cone, has been adopted by the United States surveyors as the initial point for land surveys in southern California, both base and meridian starting from its peak of 10,100 feet.

The northern and western portions of the county are almost sterile, yet, along the Mojave River, where it debouches from the mountains to the desert, and for many miles, the land on both sides is fertile, easily worked, and produces abundantly as long as the water supply is available.

Here was dug the first irrigation ditch in the state, and here were raised the first crops by irrigation. It is over a hundred years since the mission fathers of San Gabriel established a sub-mission, just west of Redlands, and employed Indian labor to dig what is known as the zanja. This ancient ditch is still in use and within the same banks that were first thrown up by Indian labor almost a century ago.

Almost every variety of fruit can be produced in some part of this county. On the lower levels, all the deciduous fruits are produced. The production of oranges, lemons, and pomeloes is large, these fruits being grown to perfection. The production of oranges has increased rapidly during the last few years, San Bernardino County being the largest producer in the state for many years. There has also been a large increase within the last five years, in alfalfa, and deciduous fruits, but wine grapes are grown to a considerable extent; one of the largest vineyards in the state at Guasti, belonging to the Italian Vineyard Company, contains 3,200 acres of all the best varieties of wine grapes.

In the western part of Rialto, Etiwanda and Cucamonga neighborhoods a considerable quantity of raisins are made.

At Chino is a factory of the American Beet Sugar Company, which is one of the largest beet-sugar factories in the state.

There are but few, if any, sheep in the county, the Census Bureau in 1910 reporting only seven, and the assessor's reports 1910-1915 states that there are none, but in 1916 reports 260.

The northern and eastern portions are heavily mineralized. The greatest source of potash is in the saline deposits at Searles Lake, where a development plant has been erected, effecting a complete commercial utilization of the vast supply of raw material in sight. The deposits are not only rich in potash, but contain, also, borax, common salt, sodium sulphate, and sodium carbonate. The scarcity of water, which renders the life of the prospector precarious, as well as interfering with the working of the mines, and the scarcity and high cost of fuel, all combined, have limited prospecting and retarded mining development in the past, but in spite of these drawbacks the county ranks fifth in the state in mineral production, the total value in 1916, being \$6,569,147, compared with \$1,614,606 in 1914, and \$2,674,042 in 1915.

The marked increase in value compared with the total of the previous year is mainly due to tungsten and copper.

SAN BERNARDINO COUNTY SUMMARY.

(Census 1910.)

Number of Farms Classified by Size.		Domestic Animals on Farms and Ranges.	
Under 3 acres.....	76	Cattle—	
3 to 9 acres.....	567	Dairy cows.....	3,048
10 to 19 acres.....	918	Other cows.....	4,889
20 to 49 acres.....	708	Yearling heifers.....	1,075
50 to 99 acres.....	278	Calves.....	926
100 to 174 acres.....	309	Yearling steers and bulls.....	481
175 to 259 acres.....	70	Other steers and bulls.....	2,847
260 to 499 acres.....	75		
500 to 999 acres.....	85	Total.....	12,761
1,000 acres and over.....	18	Value.....	\$385,713
Total.....	2,949	Horses—	
Total in 1900.....	2,850	Mature horses.....	6,339
		Yearling colts.....	372
		Spring colts.....	167
		Total.....	6,878
		Value.....	\$909,831
		Mules—	
		Mature mules.....	757
		Yearling colts.....	18
		Spring colts.....	8
		Total.....	778
		Value.....	\$139,476
		Asses and burros—	
		Number.....	88
		Value.....	\$1,789
		Swine—	
		Mature hogs.....	2,502
		Spring pigs.....	1,187
		Total.....	3,749
		Value.....	\$29,173
		Sheep—	
		Rams, ewes and wethers.....	7
		Value.....	\$35

Land and Farm Areas.	
Approximate land, acres.....	12,900,480
Land in farms in 1910.....	208,396
Land in farms in 1900.....	219,132
Improved land in farms in 1910.....	186,625
Improved land in farms in 1900.....	96,920
Woodland in farms.....	23,187
Other unimproved land.....	48,684

Value of All Farm Property.	
Total value in 1910.....	\$68,499,108
Total value in 1900.....	\$4,656,402
Per cent increase, 1900-1910.....	177.8
Land in 1910.....	69,681,348
Land in 1900.....	21,000,370
Buildings in 1910.....	5,238,858
Buildings in 1900.....	2,573,120
Implements and machinery in 1910.....	1,077,851
Implements and machinery in 1900.....	895,800
Domestic animals, poultry, and bees in 1910.....	1,501,046
Domestic animals, poultry, and bees in 1900.....	687,052

SAN BERNARDINO COUNTY SUMMARY—Continued.

Goats—			Tropical fruits—		
Number	81		Figs	Number	bearing trees
Value	\$606		Lemons	1,144	
Total value all domestic animals	\$1,406,523		Oranges	187,731	
			Pomeños	1,961,254	
			Olives	13,134	
				30,180	
Poultry and bees—			Total	2,153,501	
Poultry of all kinds	91,088		Grapevines—		
Value	\$65,180		Number in bearing	5,987,127	
Colonies of bees	8,073		Small fruits—		
Value	\$29,363		Strawberries, acres	34	
Principal Crops.			Blackberries and dewberries, acres	68	
	Acres	Bushels	All others, acres	28	
Corn	920	14,830	Total, acres	130	
Oats	436	10,598	Nuts—		
Wheat	100	200	Almonds	Number	bearing trees
Barley	3,200	85,480	Walnuts	634	
Kafir corn and milo maize	1,216	15,391		2,328	
Potatoes	444	43,364	Total	2,962	
Principal Crops—Continued.			Irrigation.		
Hay and forage—	Acres	Tons	Number of farms irrigated in 1909	2,463	
Timothy alone	10	15	Acres irrigated in 1909	70,378	
Clover alone	18	40	Acres enterprises were capable of		
Alfalfa	8,263	35,922	irrigating in 1910	86,107	
Other tame and cultivated			Acres included in projects	153,415	
grasses	89	146	Main ditches, number	291	
Wild, salt, or prairie grasses	55	44	Length, miles	466	
Grains cut green	33,764	39,414	Laterals, number	237	
All other hay and forage	409	778	Length, miles	253	
Totals	42,608	76,359	Flowing walls, number	79	
Poultry products—			Pumped walls, number	449	
Poultry raised, number	105,606		Cost of irrigation enterprises up to		
Eggs produced, dozen	579,685		July 1, 1910	\$9,416,900	
Value poultry and eggs produced	\$228,968		Average cost per acre irrigation		
Honey and wax—			enterprises were capable of irrigat-		
Honey produced, pounds	363,025		ing in 1910	\$109.36	
Wax produced, pounds	5,983		Mineral Production in 1916.		
Value honey and wax produced	\$23,466		Substance	Amount	Value
Special crops—			Cement, barrels	1,036,000	\$1,246,000
Potatoes, acres	444		Copper, pounds	1,577,901	338,164
Sweet potatoes, acres	55		Gems		1,000
All other vegetables, acres	813		Gold		279,813
Sugar beets, acres	4,121		Granite, cubic feet	7,500	2,500
Orchard fruits—			Lead, pounds	673,801	46,492
	Number	bearing trees	Lime, barrels	151,670	54,317
Apples	55,150		Limestone, tons	65,174	63,486
Apricots	111,125		Mineral water, gallons	40,500	6,500
Cherries	3,057		Salt, tons	2,355	12,830
Peaches and nectarines	197,768		Silver		67,146
Pears	2,302		Stone, miscellaneous		172,454
Prunes and plums	8,779		Tungsten concentrates, tons	1,921	3,915,434
Total	379,538		Zinc, pounds	707,062	94,746
			Other minerals*		217,365
			Total	\$6,592,147	
			Number of mineral springs	4	

*Includes brick, dolomite, feldspar, gypsum, manganese, mineral paint, pumice, potash, talc and strontium.

SAN DIEGO COUNTY.

Date of creation, February 18, 1850.

	1890	1900	1910	1916 (estimated)
Land area, 4,221 square miles.*	Population... 34,897	35,000	61,665	-----
County seat, San Diego (city).	Population... 16,159	17,700	39,578	53,830
Population per square mile, 14.6.				
	Highest	Lowest	Inches	Inches
Elevation, 87 feet.	1916: Temperature... 84	36	Rainfall... 11.56	Snow... 0
	1917: Temperature... 92	39	Rainfall... 8.04	Snow... T

San Diego occupies the extreme southwestern portion of the state, and has an area slightly larger than Massachusetts. The Pacific Ocean washes its shores for upward of 75 miles. The land rises gently from the ocean for a distance of about 50 miles to a chain of peaks forming the backbone of the county, descending again quite rapidly to the Colorado River, the greater part of which is below sea level.

The arable portion of the western slope is divided into a series of irregular terraces or plateaus. The lower, or coast, terrace comprises a number of valleys with the intervening mesa. This large acreage is practically frostless. Next comes a series of higher valleys, varying in elevation from 400 to 500 feet. The third terrace, the altitude of which ranges from 1,000 feet to 2,500 feet, comprises the foothill region, with numerous smaller intervening valleys, nooks and glens. Next comes the mountain region. The elevation of the mountain valleys varies from 2,500 to 4,500 feet. They are chiefly devoted to stock raising.

The arable soil of the county may be classed under two heads: granitic and adobe; though there is often a mixture of both, resembling adobe.

San Diego County is coming to the front in the production of lima beans and other varieties of some of the most productive sections yielding from 20 to 25 sacks per acre.

The intermountain region, the hills and valleys between the plains of Imperial and the western slope of the county, is rich in minerals, and affords excellent pasturage for several thousand cattle.

The orange, lemon, pomelo, or grapefruit are grown, and the production of lemons is increasing. Raisin grapes are also produced in one or two districts. Olives are grown on a considerable scale in the county. San Diego City has two olive oil factories. Within the last five years apples have increased considerably, peaches and pears have more than doubled. A limited acreage has recently been planted in avocado trees.

Peaches, apricots, pears, quinces, plums, cherries, and other deciduous fruits do well.

The mineral wealth of San Diego County, though known to be great, is largely undeveloped, the value produced in 1916 being \$397,168.

San Diego is producing the finest tourmaline in the United States.

The climate of San Diego is all that could be desired.

Camp Kearny, with many thousands of men stationed there, is only 14 miles north of San Diego, while the Exposition buildings are occupied as a naval station for recruits. The aviation school is at North Island Marine base, being established on tide lands between Point Loma and the city.

*About half of the eastern part of the county, comprising 4,089 square miles, was organized into Imperial County in 1907.

SAN DIEGO COUNTY SUMMARY.

(Census 1910.)

Number of Farms Classified by Size.		Swine—	
Under 3 acres.....	20	Mature hogs	4,261
3 to 9 acres.....	236	Spring pigs	3,139
10 to 19 acres.....	345	Total	7,401
20 to 49 acres.....	414	Value	\$58,842
50 to 99 acres.....	269		
100 to 174 acres.....	337	Sheep—	
175 to 259 acres.....	146	Rams, ewes and wethers.....	220
260 to 499 acres.....	246	Spring lambs	69
500 to 999 acres.....	156	Total	289
1,000 acres and over.....	129	Value	\$1,310
Total	2,298	Goats—	
Total in 1900.....	2,698	Number	1,147
		Value	\$2,789
Land and Farm Areas.		Total value all domestic animals	\$2,790,267
Approximate land, acres.....	2,701,440		
Land in farms in 1910.....	884,426	Poultry and bees—	
Land in farms in 1900.....	809,419	Poultry of all kinds.....	130,158
Improved land in farms in 1910.....	234,045	Value	\$104,829
Improved land in farms in 1900.....	229,791	Colonies of bees.....	30,595
Woodland in farms.....	71,020	Value	\$105,908
Other unimproved land.....	529,361		
Value of All Farm Property.		Principal Crops.	
Total value in 1910.....	\$31,124,814		
Total value in 1900.....	18,846,677		
Land in 1910.....	23,984,732		
Land in 1900.....	14,133,990	Corn	Acres 4,544 Bushels 71,374
Buildings in 1910.....	3,337,382	Oats	7,090 177,485
Buildings in 1900.....	2,170,190	Wheat	7,308 82,013
Implements and machinery in 1910.....	851,591	Barley	17,745 284,677
Implements and machinery in 1900.....	533,980	Kafir corn and milo maize.....	17 293
Domestic animals, poultry and bees		Dry edible beans.....	3,492 45,661
in 1910	3,001,109	Potatoes	374 35,717
Domestic animals, poultry and bees			
in 1900	1,508,517	Hay and forage—	Acres Tons
Domestic Animals on Farms and Ranges.		Timothy alone	26 58
Cattle—		Clover alone	1 5
Dairy cows	10,633	Alfalfa	2,506 11,739
Other cows	15,815	Other tame and cultivated	
Yearling heifers	7,874	grasses	6,655 6,225
Calves	8,088	Wild, salt, or prairie grasses	2,792 2,018
Yearling steers and bulls.....	6,490	Grains cut green.....	68,844 60,302
Other steers and bulls.....	9,877	All other hay and forage.....	1,165 6,152
Total	58,777	Totals	82,049 86,559
Value	\$1,356,802	Poultry and products—	
Horses—		Poultry raised, number.....	174,778
Mature horses	9,663	Eggs produced, dozen.....	921,117
Yearling colts	1,130	Value poultry and eggs produced	\$357,579
Spring colts	706		
Total	11,498	Honey and wax—	
Value	\$1,262,938	Honey produced, pounds.....	1,559,607
Mules—		Wax produced, pounds.....	18,589
Mature mules	683	Value of honey and wax produced..	\$80,401
Yearling colts	60	Wool—	
Spring colts	23	Wool, fleeces shorn.....	155
Total	766	Mohair and goat hair, fleeces shorn	60
Value	\$95,570	Value wool and mohair produced..	\$195
Asses and burros—		Special crops—	
Number	181	Potatoes, acres	374
Value	\$11,086	Sweet potatoes, acres.....	27
		All other vegetables, acres.....	1,131
		Sugar beets, acres.....	21

SAN DIEGO COUNTY SUMMARY—Continued.

Principal Crops—Continued.		Irrigation.	
Orchard fruits—	Number bearing trees	Number of farms irrigated in 1909...	890
Apples	37,662	Acres irrigated in 1909.....	24,944
Apriots	20,868	Acres enterprises were capable of irrigating in 1910.....	\$1,205
Cherries	1,792	Acres included in projects.....	45,535
Peaches and nectarines.....	29,800	Main ditches, number.....	288
Pears	6,023	Length, miles.....	259
Prunes and plums.....	16,022	Laterals, number.....	244
Total	112,993	Length, miles.....	140
Tropical fruits—	Number bearing trees	Pumped wells, number.....	438
Figs	2,459	Cost of irrigation enterprises up to July 1, 1910.....	\$3,753,127
Lemons.....	196,318	Average cost per acre irrigation enterprises were capable of irrigating in 1910.....	\$120.27
Oranges.....	107,457		
Pomeelos.....	5,764		
Olives.....	109,871		
Total	425,260		
Grapevines—			
Number in bearing.....	1,228,868		
Small fruits—			
Strawberries, acres.....	43		
Blackberries and dewberries, acres.....	22		
All others, acres.....	22		
Total	87		
Nuts—	Number bearing trees		
Almonds.....	9,279		
Pecans.....	1,080		
Walnuts.....	9,150		
Total	19,651		

Mineral Production in 1916.		
Substance	Amount	Value
Brick, thousand.....	4,001	\$36,842
Clay (pottery), tons.....	283	613
Copper, pounds.....	16,806	4,134
Gems.....		2,710
Potash, tons.....	2,150	175,804
Stone, miscellaneous.....		163,925
Other minerals*.....		18,140
Total		\$397,108
Number of mineral springs.....		19

*Includes granite, lithia, mineral water and salt.

SAN FRANCISCO CITY AND COUNTY.

Date of creation, February 18, 1850.

	1880	1900	1910	1917 (estimated)
Land area, 46½ square miles.	Population.. 296,997	342,782	416,912	550,000
County seat, San Francisco.				
Population per square mile, 11,828.				
Water area, 80½ square miles.				
Elevation, 207 feet.	Highest 87	Lowest 37	Inches Rainfall... 28.09	Inches Snow... T
	1917: Temperature... 96	34	Rainfall... 9.00	Snow... 0

San Francisco is essentially a commercial and manufacturing city. It produces no agricultural products, except to a small extent the minor vegetables. Its location on the bay of San Francisco, one of the finest and safest harbors in the world, eminently fits it for a commercial city, and its importance in this respect insures it a place among the chief shipping centers of the world.

The value of all property has increased enormously in recent years in spite of a temporary setback owing to the terrible double disaster of earthquake and fire in 1906, as the following summary of assessed values will prove:

1850	\$21,621,184	1912	\$605,141,694
1860	35,967,490	1913	624,182,130
1870	116,375,988	1914	647,456,025
1880	253,620,326	1915	656,677,332
1890	301,438,040	1916	756,226,432
1900	410,426,849	1917	791,957,777
1911	545,398,908		

The total county indebtedness in 1917 amounted to \$43,370,472. Space will not allow of even a brief summary of the vast resources and possibilities of this great, rising, and progressive city, but much up-to-date information of value will be found in numerous publications.*

SAN FRANCISCO COUNTY SUMMARY.

(Census 1910.)

Number of Farms Classified by Size.		Value of All Farm Property.	
Under 3 acres	69	Total value in 1910	\$2,680,426
3 to 9 acres	50	Total value in 1900	2,467,368
10 to 19 acres	11	Per cent increase 1900-1910	9.2
20 to 49 acres	15	Land in 1910	2,097,111
50 to 99 acres	7	Land in 1900	1,856,080
100 to 174 acres	4	Buildings in 1910	338,769
175 to 259 acres	1	Buildings in 1900	228,100
Total	157	Implements and machinery in 1910	68,370
Total in 1900	304	Implements and machinery in 1900	71,260
Land and Farm Areas.		Domestic animals, poultry, and bees in 1910	138,268
Approximate land, acres	27,520	Domestic animals, poultry, and bees in 1900	252,562
Land in farms in 1910	2,091		
Land in farms in 1900	3,219		
Improved land in farms in 1910	1,562		
Improved land in farms in 1900	3,229		
Woodland in farms	289		
Other unimproved land	240		

*For the foreign trade of the port of San Francisco see Part XV.

SAN FRANCISCO COUNTY SUMMARY—Continued.

Domestic Animals on Farms and Ranges.		Hay and forage—		Acres	Tons
Cattle—			Alfalfa	1	10
Dairy cows	1,645		Other tame and cultivated		
Other cows	10		grasses	60	60
Yearling heifers	581		Grains cut green	42	80
Calves	174				
Yearling steers and bulls	75		Totals	108	150
Other steers and bulls	25				
Total	2,510		Poultry products—		
Value	\$77,015		Poultry raised, number		196,020
			Eggs produced, dozen		110,057
			Value poultry and eggs produced		\$126,505
Horses—			Wool—		
Mature horses	318		Wool, fleeces shorn		3
Spring colts	1		Value wool and mohair produced		\$4
Total	319		Special crops—		
Value	\$32,480		Potatoes, acres		87
			Sweet potatoes, acres		2
			All other vegetables, acres		466
Swine—			Orchard fruits—	Number	bearing trees
Mature hogs	181		Apples		40
Spring pigs	100		Peaches and nectarines		180
Total	281		Prunes and plums		945
Value	\$1,655		Total		1,105
Sheep—			Olives—		
Eams, ewes, and wethers	3		Number in bearing		1
Value	\$30		Grapevines—		
			Number in bearing		3,000
Goats—			Irrigation.		
Number	9		Number of farms irrigated in 1909		25
Value	\$90		Acres irrigated in 1909		323
Total value all domestic animals	\$111,280		Acres irrigated in 1910		323
			Acres included in projects		323
Poultry and bees—			Main ditches, number		24
Poultry of all kinds	42,649		Length, miles		7
Value	\$26,889		Pumped wells, number		89
Colonies of bees	6		Cost of irrigation enterprises up to		
Value	\$14		July 1, 1910		\$21,975
			Average cost per acre irrigation		
			enterprises were capable of irrigat-		
			ing in 1910		\$57.28
Principal Crops.			Mineral Production in 1916.		
Potatoes	Acres 87	Bushels 7,800	Stone, miscellaneous		\$76,487

Statement Showing Domestic and Foreign Exports, and Shipments to Noncontiguous Territories from San Francisco for the Year Ending December 31, 1917.

Exports of domestic merchandise	\$168,489,148
Exports of foreign merchandise	6,928,144
Shipments of noncontiguous territory—	
Alaska	4,784,508
American Samoa	276,397
Guam	246,906
Hawaii	44,897,136
Total	\$179,804,097
Foreign exports—	
Refined bullion	2,142,290
Coin	1,377,787
Total	\$3,520,077
Shipments noncontiguous coin—	
Alaska	\$11,300
Hawaii	101,800
Total	\$112,100
Total exports and shipments of domestic gold and silver	\$188,187,285
Total exports—	
Foreign gold	\$1,179,700
Foreign silver	2,358,806
Total	\$4,438,605
Grand total of all exports and shipments of gold and silver	\$162,575,940

Ore and base bullion to the value of \$6,578,118, coin to the value of \$55,294, and foreign coin to the value of \$24,385,008 were also imported into San Francisco, or a total of \$30,968,410 value of gold imported.

SAN JOAQUIN COUNTY.

Date of creation, February 18, 1850.

	1890	1900	1910	1916 (estimated)
Land area, 1,488 square miles.	Population.. 28,629	35,452	50,781	-----
County seat, Stockton (city).	Population.. 14,424	17,506	23,258	85,386
Population per square mile, 35.0.				

	Highest	Lowest	Inches	Inches
Elevation, 23 feet.	1916: Temperature...102	25	Rainfall...18.85	Snow... 3.0
	1917: Temperature...105	22	Rainfall... 7.01	Snow... 0

San Joaquin County lies directly east of San Francisco and San Pablo bays and spans the great interior valley of California from the foothills of the Coast Range to the foothills of the Sierra Nevada Mountains. It thus commands the entrance to the chief port and metropolis of the coast from the continent, and for both water and land traffic; hence it is termed the "Gateway County." The soil varies in character, but the surface is mostly level and well adapted to intensive agriculture. The climate of this area is tempered by sea influences, by the air which rushes through the gap in the Coast Range.

The county is famous for its good roads, built by the county at a cost of \$2,500,000.

(Information supplied by the Chamber of Commerce.)

Four hundred miles of navigable waterways, three transcontinental railways, three interurban lines, and three hundred and fifty miles of improved highways give San Joaquin County unusually good transportation facilities and make it possible to capitalize fully its advantageous location, directly east of San Francisco. A developed arm of the San Joaquin River penetrates into the center of its county seat, Stockton. The western third of the county embraces the far-famed San Joaquin Delta, reclaimed by levee construction and drainage, land of exceptional productivity. The soils of the county are roughly divided into peats of the delta, the adobes along the river and surrounding Stockton, the deep, mellow loams of the west side, and the great body of sandy loam found in the northern and southern parts of the county. It is estimated that over 40 per cent of the farm area of the county is developed for irrigation by public and private enterprises.

Second in California and twelfth in the United States in the value of all crops, according to census figures, San Joaquin County produces annually about 13½ per cent on its assessed valuation, this ratio being higher than for any other county in the state. The per capita wealth of its rural districts, \$2,448.74, is greater than that of any other California county. San Joaquin County is first in the production of cereals, vegetables, potatoes, barley, and table grapes; second in hay and forage, oats and rye; third in grapes; fourth in wheat, beans, peas, and bearing almond trees. It is significant to note that all the crops noted are staples. Animal husbandry is fast coming to the front, opportunities in such lines being especially attractive. Sugar beets have become one of the important crops, and sugar factories are near Manteca and Tracy, and another is near Stockton. In the last few years field corn has become one of the biggest and most satisfactory crops.

The great South San Joaquin Irrigation District of 71,050 acres and the new West Side Irrigation District of nearly 12,000 acres are both within the county. They are owned and operated by the land owners themselves as municipal corporations.

The commerce of the river amounts to about 825,000 tons annually, valued at \$42,000,000. Nearly 200,000 passengers are carried on the river each year.

SAN JOAQUIN COUNTY SUMMARY.

(Census 1910.)

Number of Farms Classified by Size.			
Under 3 acres.....	9	Mules—	
3 to 9 acres.....	204	Mature mules	3,169
10 to 19 acres.....	531	Yearling colts	217
20 to 49 acres.....	797	Spring colts	144
50 to 99 acres.....	397	Total	3,530
100 to 174 acres.....	395	Value	\$482,560
175 to 259 acres.....	217	Asses and burros—	
260 to 499 acres.....	371	Number	62
500 to 999 acres.....	221	Value	\$16,700
1,000 acres and over.....	144	Swine—	
Total	3,286	Mature hogs	12,473
Total in 1900.....	1,966	Spring pigs	9,981
Land and Farm Areas.		Total	23,454
Approximate land, acres.....	926,720	Value	\$143,626
Land in farms in 1910.....	763,048	Sheep—	
Land in farms in 1900.....	751,065	Rams, ewes and wethers.....	14,907
Improved land in farms in 1910.....	611,762	Spring lambs	10,012
Improved land in farms in 1900.....	652,923	Total	24,919
Woodland in farms.....	35,887	Value	\$63,771
Other unimproved land.....	115,899	Goats—	
Value of All Farm Property.		Number	300
Total value in 1910.....	\$67,286,628	Value	\$728
Total value in 1900.....	31,218,424	Total value all domestic animals	\$3,860,156
Per cent increase, 1900-1910.....	115.5	Poultry and bees—	
Land in 1910.....	55,909,884	Poultry of all kinds.....	175,456
Land in 1900.....	25,769,500	Value	\$101,710
Buildings in 1910.....	5,675,665	Colonies of bees.....	3,014
Buildings in 1900.....	2,297,130	Value	\$8,161
Implement and machinery in 1910.....	1,741,053	Principal Crops.	
Implement and machinery in 1900.....	907,410		
Domestic animals, poultry and bees			
in 1910.....	3,960,026		
Domestic animals, poultry and bees			
in 1900.....	2,244,294		
Domestic Animals on Farms and Ranges.			
Cattle—			
Dairy cows	11,904	Corn	2,547 57,028
Other cows	6,861	Oats	22,306 396,661
Yearling heifers	3,636	Wheat	24,786 310,587
Calves	4,960	Barley	125,114 3,827,187
Yearling steers and bulls.....	1,987	Kafir corn and milo maize.....	2,968 32,786
Other steers and bulls.....	1,998	Dry edible beans.....	13,954 362,157
Total	31,296	Potatoes	21,313 4,279,306
Value	\$874,834	Hay and forage—	
Horses*—		Timothy and clover mixed..	190 330
Mature horses	18,256	Clover alone	70 362
Yearling colts	1,597	Alfalfa	8,906 36,959
Spring colts	1,069	Other tame and cultivated	
Total	20,972	grasses	3,683 3,975
Value	\$2,247,876	Wild, salt, or prairie grasses	10,248 12,306
		Grains cut green.....	80,861 119,032
		All other hay and forage....	1,119 1,624
		Totals	104,916 174,445

*Includes animals, age and sex not specified.

SAN JOAQUIN COUNTY SUMMARY—Continued.

Poultry products—		Small fruits—	
Poultry raised, number.....	212,484	Strawberries, acres.....	33
Eggs produced, dozen.....	955,501	Blackberries and dewberries, acres..	31
Value poultry and eggs produced..	\$337,417	All others, acres.....	23
Honey and wax—		Total	92
Honey produced, pounds.....	104,645	Nuts—	
Wax produced, pounds.....	3,459	Number bearing trees	
Value of honey and wax produced..	\$6,505	Almonds	97,024
Wool—		Pecans	6
Wool, fleeces shorn.....	20,477	Walnuts	2,455
Mohair and goat hair, fleeces shorn	37	Total	99,490
Value of wool and mohair produced	\$14,114	Irrigation.	
Special crops—		Number of farms irrigated in 1909...	1,452
Potatoes, acres.....	21,313	Acres irrigated in 1909.....	59,811
Sweet potatoes, acres.....	19	Acres enterprises were capable of	
All other vegetables, acres.....	6,728	irrigating in 1910.....	77,083
Sugar beets, acres.....	132	Acres included in projects.....	173,563
Orchard fruits—		Main ditches, number.....	298
Number bearing trees		Length, miles.....	308
Apples	5,053	Laterals, number.....	49
Apricots	53,007	Length, miles.....	192
Cherries	21,580	Pumped wells, number.....	1,618
Peaches and nectarines.....	185,073	Cost of irrigation enterprises up to	
Pears	13,664	July 1, 1910.....	\$1,689,730
Prunes and plums.....	83,641	Average cost per acre irrigation	
Total	364,290	enterprises were capable of irrigat-	
Tropical fruits—		ing in 1910.....	\$21.92
Number bearing trees		Mineral Production in 1916.	
Figs	4,087	Substance	Amount
Lemons	75	Brick, thousands	10,189
Oranges	1,950	Manganese, tons	6,493
Pomeloos	2	Natural gas, 1,000 cubic feet.....	132,441
Olives	19,968	Stone, miscellaneous	53,075
Total	26,070	Total	\$408,862
Grapevines—			
Number in bearing.....	13,371,794		

SAN LUIS OBISPO COUNTY.

Date of creation, February 12, 1850.

	1890	1900	1910	1915
Land area, 3,334 square miles.	Population 16,072	16,637	19,363	(estimated)
County seat, San Luis Obispo (city).	Population 2,995	3,021	5,157	6,500
Population per square mile, 5.8.				
Elevation, 201 feet.	Highest	Lowest	Inches	Inches
1916: Temperature...	96	29	Rainfall...36.40	Snow... T
1917: Temperature...	110	30	Rainfall...10.34	Snow... 0

This large and fertile county lies on the coast side of the state, about midway between San Francisco and Los Angeles. It is an old county, organized in the days of gold, and received its name nearly a hundred years before the Americans came into the country. It was a great region in the days of the Spanish occupation, and is a great region still in its advantages of soil and climate, of diversified surface and abundant natural resources.

Much grain is still grown. In the eastern portion of the county wheat is still a large product, with an increasing acreage sown to barley.

Fruit is grown successfully in almost all portions of the county, and there are wide areas where fruit of many kinds is a prolific crop. The coast section is especially adapted, nearly every variety doing well.

Paso Robles is the leading town east of the Santa Lucia Mountains, and the second in size in the county, and is pleasantly situated on the Salinas River in a land of oaks and rolling hills. Its chief features are the hot springs. The great hot springs flow approximately 2,000,000 gallons per day, and there are several other springs of varying chemical constituents and adapted to wide medicinal uses.

The producing oil wells of San Luis Obispo County demonstrate the fact that the Monterey shale, found over the greater portion of the coast side of the county, is an extension of those of the great Santa Maria oil fields immediately adjoining the county on the south. Port San Luis, which is the terminus of three pipe lines from the Santa Maria fields, is one of the largest oil ports. The well-known Coalinga, Kern River, Midway, Sunset, and McKittrick fields are also connected by pipe line with this port.

SAN LUIS OBISPO COUNTY SUMMARY.

(Census 1910.)

Number of Farms Classified by Size.		Value of All Farm Property.	
Under 3 acres	7	Total value in 1910.....	\$22,426,263
3 to 9 acres	65	Total value in 1900.....	14,635,767
10 to 19 acres	80	Per cent increase 1900-1910.....	151.6
20 to 49 acres	179	Land in 1910.....	24,745,375
50 to 99 acres	187	Land in 1900.....	11,123,180
100 to 174 acres	237	Buildings in 1910.....	2,136,447
175 to 259 acres	123	Buildings in 1900.....	1,272,830
260 to 499 acres	304	Implements and machinery in 1910.....	742,498
500 to 999 acres	238	Implements and machinery in 1900.....	479,840
1,000 acres and over.....	214	Domestic animals, poultry, and bees	
		in 1910.....	4,902,083
Total	1,714	Domestic animals, poultry, and bees	
Total in 1900.....	1,813	in 1900.....	1,742,917
Land and Farm Areas.		Domestic Animals on Farms and Ranges.	
Approximate land, acres.....	2,123,760	Oattle—	
Land in farms in 1910.....	1,598,000	Dairy cows	24,126
Land in farms in 1900.....	1,084,480	Other cows	22,908
Improved land in farms in 1910.....	826,928	Yearling heifers	10,345
Improved land in farms in 1900.....	412,356	Calves	15,685
Woodland in farms.....	174,991	Yearling steers and bulls.....	8,945
Other unimproved land.....	1,066,841	Other steers and bulls.....	22,120
		Total	118,704
		Value	\$2,780,415

*Includes animals, age and sex not specified.

SAN LUIS OBISPO COUNTY SUMMARY—Continued.

Domestic Animals on Farms and Ranges—Continued.				Wool—			
Horses—				Wool, fleeces shorn.....		64,719	
Mature horses		12,001		Mohair and goat hair, fleeces shorn		4,788	
Yearling colts		1,686		Value of wool and mohair produced		\$62,898	
Spring colts		987		Special crops—			
Total		15,274		Potatoes, acres		955	
Value		\$1,451,086		Sweet potatoes, acres		3	
Mules—				All other vegetables, acres		960	
Mature mules		754		Sugar beets, acres		284	
Yearling colts		88		Orchard fruits—			
Spring colts		40					Number bearing trees
Total		877		Apples		35,006	
Value		\$108,796		Apricots		20,123	
Asses and burros—				Cherries		702	
Number		19		Peaches and nectarines		10,614	
Value		\$2,006		Pears		5,097	
Swine—				Prunes and plums		21,388	
Mature hogs		11,760		Total		98,217	
Spring pigs		6,118		Tropical fruits—			
Total		17,868					Number bearing trees
Value		\$110,880		Figs		819	
Sheep—				Lemons		955	
Rams, ewes, and wethers		54,717		Oranges		794	
Spring lambs		22,286		Pomeles		75	
Total		86,963		Olives		1,597	
Value		\$256,156		Total		4,253	
Goats—				Grapevines—			
Number		7,890		Number in bearing		265,481	
Value		\$14,788		Small fruits—			
Total value all domestic animals		\$4,783,100		Strawberries, acres		45	
Poultry and bees—				Blackberries and dewberries, acres		30	
Poultry of all kinds		119,822		All others, acres		62	
Value		\$53,605		Total		137	
Colonies of bees		3,886		Nuts—			
Value		\$15,268					Number bearing trees
Principal Crops.				Almonds		9,281	
				Pecans		1	
				Walnuts		7,871	
				Total		17,264	
				Irrigation.			
Corn	Acres	Busbels		Number of farms irrigated in 1909		91	
Oats	1,509	24,015		Acres irrigated in 1909		1,697	
Wheat	1,139	35,884		Acres enterprises were capable of irrigating in 1910		2,416	
Barley	26,870	667,718		Acres included in projects		2,589	
Kafir corn and milo maize	1	24		Main ditches, number		51	
Dry edible beans	11,169	207,674		Length, miles		42	
Potatoes	955	105,277		Laterals, number		5	
Hay and forage—				Length, miles		3	
Alfalfa	989	2,658		Flowing wells, number		4	
Other tame and cultivated grasses	1,888	2,108		Pumped wells, number		12	
Wild, salt, or prairie grasses	880	1,088		Cost of irrigation enterprises up to July 1, 1910		\$82,311	
Grains cut green	50,964	62,650		Average cost per acre irrigation enterprises were capable of irrigating in 1910		13.87	
All other hay and forage	339	1,776		Mineral Production in 1916.			
Totals	55,000	70,235					
Poultry products—				Substance	Amount	Value	
Poultry raised, number		109,871		Chromite, tons	1,865	\$27,738	
Eggs produced, dozens		840,405		Brick, M	4,150	45,500	
Value of poultry and eggs produced		\$243,244		Copper, pounds	356	86	
Honey and wax—				Mineral water, gallons	2,500	475	
Honey produced, pounds		177,342		Petroleum, barrels	11,670	5,262	
Wax produced, pounds		1,938		Quicksilver, flasks	1,237	114,724	
Value of honey and wax produced		\$11,874		Stone, miscellaneous		49,818	
				Other minerals*		2,717	
				Total		\$245,807	
				Number of mineral springs		12	

*Includes bituminous rock, clay (pottery) and sandstone.

SAN MATEO COUNTY.

Date of creation, April 19, 1856.

	1890	1900	1910	1915
Land area, 447 square miles.	Population-- 10,067	12,094	26,585	-----
County seat, Redwood (city).	Population-- 1,572	1,653	2,442	3,500

Population per square mile, 59.5.

San Mateo (Station):

Elevation, 22 feet. (No observation station in county.)

San Mateo County is that part of the San Francisco peninsula lying between San Francisco County on the north and Santa Clara and Santa Cruz counties on the south. This county is divided lengthwise by the Santa Morena ridge of mountains, forming the backbone of the peninsula. The mountain ridge is the fertile and picturesque watershed of a region peculiarly adapted for homes of beauty and comfort on its eastern slope. Along the bay shore are many miles of deep water, and spur tracks to this deep water are now under construction, thereby opening up vast possibilities to manufacturers who desire cheap sites with excellent shipping facilities.

On the west the descent to the Pacific is quick and abrupt into a region occupied by farmers, dairymen, stock raisers, and lumbermen. The whole ridge is anywhere accessible, and all more or less covered with oak and redwood.

Climatic and scenic surroundings, shipping facilities, proximity to the metropolis of the Pacific Coast, are all favorable conditions working toward the prosperity of this county.

(Information supplied by the Chamber of Commerce.)

San Mateo County is the home of the artichoke and brussels sprouts, the rolling hill country of its western shore showing thousands of acres under cultivation for these vegetables, the market for which extends from the Pacific to the Atlantic. All sorts of vegetables thrive in San Mateo County, the northern end seemingly being particularly adapted for their cultivation. The cultivation of flowers, both in the open and under glass, is a large and profitable industry. Seventy-five per cent of the flowers sold in San Francisco's world-famed street marts are produced in San Mateo County. The violet beds of San Mateo, some of which are acres in extent, have long been a lure for tourists.

On the east shore or bay side of San Mateo County deep water has brought the county an extensive industrial development, particularly at South San Francisco and Redwood City, where harbors and manufacturing centers have been developed. Some of the largest plants on the coast being located at these points.

The wondrous scenic attractions of the county have been capitalized by the people through the expenditure of nearly one and one-half million dollars in the construction of a magnificent highway system radiating from El Camino Real, the state highway, which passes through the county and joins the paved streets of San Francisco at the county line. The construction of these roads has brought an unprecedented growth to the county, evidenced by the beautiful homes built and now under course of construction in what were formerly inaccessible spots.

SAN MATEO COUNTY SUMMARY.

(Census 1910.)

Number of Farms Classified by Size.			
Under 3 acres.....	46	Asses and burros—	
3 to 9 acres.....	81	Number.....	2
10 to 19 acres.....	55	Value.....	\$50
20 to 49 acres.....	113	Swine—	
50 to 99 acres.....	61	Mature hogs.....	8,692
100 to 174 acres.....	90	Spring pigs.....	3,900
175 to 259 acres.....	52	Total.....	12,692
260 to 499 acres.....	97	Value.....	\$93,912
500 to 999 acres.....	60	Sheep—	
1,000 acres and over.....	41	Rams, ewes and wethers.....	767
Total.....	665	Spring lambs.....	592
Total in 1900.....	551	Total.....	1,329
Land and Farm Areas.		Value.....	\$5,140
Approximate land, acres.....	286,080	Goats—	
Land in farms in 1910.....	160,655	Number.....	154
Land in farms in 1900.....	149,944	Value.....	\$569
Improved land in farms in 1910.....	100,800	Total value all domestic animals.....	\$990,208
Improved land in farms in 1900.....	72,429	Poultry and bees—	
Woodland in farms.....	27,334	Poultry of all kinds.....	47,625
Other unimproved land.....	32,521	Value.....	\$26,112
Value of All Farm Property.		Colonies of bees.....	289
Total value in 1910.....	\$20,870,535	Value.....	\$963
Total value in 1900.....	10,354,856	Principal Crops.	
Per cent increase, 1900-1910.....	101.6		
Land in 1910.....	17,448,290		
Land in 1900.....	8,201,140		
Buildings in 1910.....	2,006,705		
Buildings in 1900.....	1,833,390		
Implements and machinery in 1910.....	398,527		
Implements and machinery in 1900.....	173,000		
Domestic animals, poultry and bees in 1910.....	1,017,273		
Domestic animals, poultry and bees in 1900.....	646,726		
Domestic Animals on Farms and Ranges.			
Cattle—			
Dairy cows.....	8,119		
Other cows.....	2,805		
Yearling heifers.....	1,848		
Calves.....	2,375		
Yearling steers and bulls.....	369		
Other steers and bulls.....	272		
Total.....	15,298		
Value.....	\$463,646		
Horses—			
Mature horses.....	3,940		
Yearling colts.....	253		
Spring colts.....	102		
Total.....	4,295		
Value.....	\$425,976		
Mules—			
Mature mules.....	10		
Yearling colts.....	2		
Total.....	12		
Value.....	\$915		

Asses and burros—			
Number.....			2
Value.....			\$50
Swine—			
Mature hogs.....			8,692
Spring pigs.....			3,900
Total.....			12,692
Value.....			\$93,912
Sheep—			
Rams, ewes and wethers.....			767
Spring lambs.....			592
Total.....			1,329
Value.....			\$5,140
Goats—			
Number.....			154
Value.....			\$569
Total value all domestic animals.....			\$990,208
Poultry and bees—			
Poultry of all kinds.....			47,625
Value.....			\$26,112
Colonies of bees.....			289
Value.....			\$963
Principal Crops.			
	Acres	Bushels	
Corn.....	11	164	
Oats.....	16,125	162,560	
Wheat.....	68	1,473	
Barley.....	917	26,001	
Dry edible beans.....	466	14,435	
Potatoes.....	971	109,879	
Hay and forage—	Acres	Tons	
Timothy and clover mixed..	6	6	
Clover alone.....	18	36	
Alfalfa.....	11	52	
Other tame and cultivated			
grasses.....	2,472	3,688	
Wild, salt, or prairie grasses	82	57	
Grains cut green.....	16,466	25,181	
All other hay and forage.....	5	12	
Totals.....	19,060	28,982	
Poultry products—			
Poultry raised, number.....			43,946
Eggs produced, dozen.....			226,642
Value poultry and eggs produced..			\$82,180
Honey and wax—			
Honey produced, pounds.....			5,458
Wax produced, pounds.....			193
Value of honey and wax produced			\$810
Wool—			
Wool, fleeces shorn.....			1,013
Mohair and goat hair, fleeces shorn			26
Value wool and mohair produced..			\$1,162
Special crops—			
Potatoes, acres.....			971
All other vegetables, acres.....			3,210

SAN MATEO COUNTY SUMMARY—Continued.

Principal Crops—Continued.		Irrigation.		
		Number	Number of farms irrigated in 1909...	75
Orchard fruits—	bearing trees		Acres irrigated in 1909.....	3,648
Apples	18,684		Acres enterprises were capable of	
Apricots	3,694		irrigating in 1910.....	3,653
Cherries	671		Acres included in projects.....	3,982
Peaches and nectarines.....	573		Main ditches, number	57
Pears	1,688		Length, miles	58
Prunes and plums	18,279		Pumped wells, number	40
Total	43,655		Cost of irrigation enterprises up to	
			July 1, 1910.....	\$90,921
		Number	Average cost per acre irrigation	
Tropical fruits—	bearing trees		enterprises were capable of irrigat-	
Figs	36		ing in 1910.....	\$24.89
Lemons	1			
Oranges	25			
Olives	7,187			
Total	7,249			
Grapevines—				
Number in bearing	124,900			
Small fruits—				
Strawberries, acres	56			
Blackberries and dewberries, acres..	10			
All others, acres.....	3			
Total	69			
		Number	Mineral Production in 1916.	
Nuts—	bearing trees		Substance	Amount
Almonds	94		Brick, thousands	986
Walnuts	223		Clay (pottery), tons.....	598
Total	331		Gems	85
			Salt, tons	28,540
			Stone, miscellaneous	25,663
			Total	\$135,406

SANTA BARBARA COUNTY.

Date of creation, February 18, 1850.

		1890	1900	1910	1916 (estimated)
Land area, 2,740 square miles.	Population--	15,754	18,934	27,738	-----
County seat, Santa Barbara (city).	Population--	5,864	6,587	11,669	14,846
Population per square mile, 10.1.					
	Highest	Lowest	Inches	Inches	
Elevation, 180 feet.	1916: Temperature--- 91	32	Rainfall---32.10	Snow--	T
	1917: Temperature---115	28	Rainfall---11.79	Snow--	0

Santa Barbara County is situated in the parallelogram formed by the break in the coast line made by Point Concepcion, the great continental headland. From this point, the coast line extends for about fifty miles in each direction. The Coast Range of mountains divides the county into five natural divisions.

The largest of these divisions is the Santa Maria Valley occupying the northern and western portion of the county. This valley contains about 160,000 acres, 80 per cent of which is under cultivation. The Santa Maria River is the chief stream, furnishing water for irrigation purposes in the upper valley and replenishing the underground flow nearer the ocean. The soil is mostly a light sandy loam, noted for its great depth and fertility. It is especially adapted to the growing of beans, beets, potatoes, and onions. The Union Sugar Company maintains a large factory at Bettaravia, where upwards of 100,000 tons of beets are made into sugar.

South of the Santa Maria Valley, and parallel to it, is the Los Alamos Valley. Most of the cultivated land is planted to beans, the higher lands being devoted to the growing of grain.

The Lompoc Valley, extending along the Santa Ynez River from the ocean eastward, lies parallel to the Los Alamos Valley. While not as wide as the Santa Maria Valley, its length is greater. The lower portion of the valley resembles the Santa Maria, the products and soil being very similar. Beans, beets, potatoes, and mustard head the list. The valley is noted also for the fine quality of apples and cherries. In the upper part of the valley, beans, barley, and alfalfa are the leading crops. Irrigation water can be had in abundance from the Santa Ynez River.

The Santa Barbara Valley, varying in width from one-half to four miles and extending from Point Concepcion to the Ventura County line, is a coastal plain, traversed by many mountain streams. The soil laid down by these streams is characterized by great depth and fertility. The high mountains to the north afford protection from strong winds while the proximity to the ocean greatly moderates the temperature. Near the ocean, the broad flat bottom lands are devoted to the production of lima beans, while the lands farther back are planted to orchards. Lemons, walnuts, olives and other fruits flourish. Water is obtained for irrigation from the mountain streams and through artesian wells. Many of the canyons are free from frost and are especially adapted to the growth of semi-tropical fruits, the avocado and cherimoya heading the list.

The Cuyama Valley lies in the extreme northern and eastern part of the county. As yet this valley is largely undeveloped, but it affords many possibilities to the prospective settler.

The Santa Barbara Islands lie off the coast, about thirty miles southward. They are devoted principally to the production of cattle and sheep.

A considerable portion of Santa Barbara County is made up of rolling hills, wooded with oak timber. The land is ideal for grazing, purposes and furnishes feed for large numbers of cattle, horses and hogs. The latter feed extensively on acorns. Bur clover, alfalfa, and wild oats are the natural forage crops.

In 1917, there was produced approximately 750,000 sacks of beans, 125,000 sacks of potatoes, 12,000 tons of lemons, and 2,200 tons of walnuts.

The petroleum oil fields in this county are very rich, the Santa Maria Fields producing about 4,000,000 barrels in 1917. The potash industry is being developed along the coast line. Due to the influence of the islands off the coast, the water is very quiet and large beds of giant seaweed or kelp are found. This kelp is cut by large harvesters, dried, burned, and the residue is found to contain a high percentage of potash. The Santa Barbara Channel is also noted for its fisheries. Many species of fish are taken here and are found only in the waters of this channel.

Principal crops grown: beans, beets, potatoes, onions, grain, hay, alfalfa, mustard, lemons, olives, walnuts. Principal industries: Oil refining, stock raising, dairying, potash production, fisheries.*

SANTA BARBARA COUNTY SUMMARY.

(Census 1910.)

Number of Farms Classified by Size.		Domestic Animals on Farms and Ranges.	
Under 3 acres	17	Cattle—	
3 to 9 acres	130	Dairy cows	11,000
10 to 19 acres	140	Other cows	23,752
20 to 49 acres	212	Yearling heifers	6,801
50 to 99 acres	164	Calves	11,534
100 to 174 acres	185	Yearling steers and bulls	8,000
175 to 259 acres	105	Other steers and bulls	24,578
260 to 499 acres	138		
500 to 999 acres	98	Total	87,576
1,000 acres and over	171	Value	\$2,221,007
Total	1,355	Horses—	
Total in 1900	1,149	Mature horses	10,021
Land and Farm Areas.		Yearling colts	1,442
Approximate land, acres	1,753,600	Spring colts	971
Land in farms in 1910	1,130,475	Total	12,004
Land in farms in 1900	922,611	Value	\$1,308,225
Improved land in farms in 1910	215,552	Mules—	
Improved land in farms in 1900	302,982	Mature mules	302
Woodland in farms	276,071	Yearling colts	56
Other unimproved land	628,852	Spring colts	25
Value of All Farm Property.		Total	443
Total value in 1910	\$43,544,076	Value	\$62,740
Total value in 1900	18,271,863	Asses and burros—	
Per cent increase 1900-1910	188.3	Number	24
Land in 1910	35,556,568	Value	\$4,200
Land in 1900	14,849,440	Swine—	
Buildings in 1910	8,004,679	Mature hogs	15,113
Buildings in 1900	1,375,290	Spring pigs	6,200
Implements and machinery in 1910	804,264	Total	22,073
Implements and machinery in 1900	365,770	Value	\$102,625
Domestic animals, poultry and bees in 1910	4,178,540		
Domestic animals, poultry and bees in 1900	1,651,308		

*Report of County Horticultural Commissioner.
†Includes animals, age and sex not specified.

SANTA BARBARA COUNTY SUMMARY—Continued.

Domestic Animals on Farms and Ranges—Continued.				Number bearing trees		
Sheep—				Apples	2,744	
Rams, ewes and wethers.....	60,205			Apricots	15,512	
Spring lambs	20,328			Cherries	659	
				Peaches and nectarines.....	9,560	
Total	80,533			Pears	2,612	
Value	\$275,259			Prunes and plums.....	2,730	
				Total	34,200	
Goats—				Number bearing trees		
Number	558			Figs	868	
Value	\$1,098			Lemons	4,246	
				Oranges	46,181	
Total value all domestic animals	\$4,119,104			Pomeles	716	
				Olives	44,258	
Poultry and bees—				Total	99,023	
Poultry of all kinds.....	89,995			Number bearing trees		
Value	\$46,515			Grapevines—		
Colonies of bees.....	4,072			Number in bearing.....	208,595	
Value	\$12,621					
				Small fruits—		
Principal Crops.				Strawberries, acres	24	
	Acres	Bushels		Blackberries and dewberries, acres.....	32	
Corn	1,240	25,979		All others, acres.....	7	
Oats	9,494	233,171		Total, acres	63	
Wheat	2,300	27,692		Nuts—		
Barley	26,294	658,605		Almonds	239	
Dry edible beans.....	22,355	367,385		Pecans	70	
Potatoes	1,524	151,532		Walnuts	96,776	
				Total	97,091	
Hay and forage—	Acres	Tons		Irrigation.		
Timothy and clover mixed..	100	150		Number of farms irrigated in 1909.....	137	
Clover alone	25	100		Acres irrigated in 1909.....	12,012	
Alfalfa	685	2,305		Acreage enterprises were capable of irrigating in 1910.....	13,572	
Other tame and cultivated grasses	223	267		Acreage included in projects.....	13,608	
Wild, salt, or prairie grasses	479	519		Main ditches, number	76	
Grains cut green.....	47,602	64,690		Length, miles	75	
All other hay and forage...	1,006	2,215		Laterals, number	4	
Total	50,070	70,146		Length, miles	5	
				Flowing wells, number.....	7	
Poultry products—				Pumped wells, number.....	113	
Poultry raised, number.....	91,150			Cost of irrigation enterprises up to July 1, 1910	\$370,136	
Eggs produced, dozen.....	407,168			Average cost per acre irrigation enterprises were capable of irrigating in 1910.....	\$27.23	
Value poultry and eggs produced..	\$151,719			Mineral Production in 1916.		
				Substance	Amount	Value
Honey and wax—				Mineral water, gallons.....	176,008	\$110,200
Honey produced, pounds.....	238,875			Natural gas, M cu. ft.....	3,690,410	724,746
Wax produced, pounds.....	4,000			Petroleum, barrels	4,502,206	3,574,752
Value of honey and wax produced..	\$16,678			Sandstone, cu. ft.	3,520	1,017
				Stone, miscellaneous		12,305
Wool—				Other minerals*		111,919
Wool, fleeces shorn.....	27,787			Total		\$4,535,029
Mohair and goat hair, fleeces shorn	69			Number of mineral springs.....		7
Value wool and mohair produced..	\$26,308					
Special crops—						
Potatoes, acres	1,524					
Sweet potatoes, acres.....	28					
All other vegetables, acres.....	1,588					
Sugar beets, acres.....	11,320					

*Includes bituminous rock, brick, "granite," diatomaceous earth, limestone and quicksilver.

SANTA CLARA COUNTY.

Date of creation, February 18, 1850.

	1890	1900	1910	1914 (estimated)
Land area, 1,328 square miles.	Population... 48,006	60,216	83,539	-----
County seat, San Jose (city).	Population... 18,060	21,500	28,946	38,902
Population per square mile, 62.9.				

	Highest	Lowest	Inches	Inches
Elevation, 95 feet.	1916: Temperature... 96	27	Rainfall... 36.40	Snow... T
	1917: Temperature... 102	22	Rainfall... 8.21	Snow... 0

Santa Clara County is situated to the south of San Francisco Bay, and is separated from the Pacific Ocean by San Mateo and Santa Cruz counties. The county seat is San Jose, and is distant 50 miles from San Francisco. The county is 47 miles wide from north to south, and through the center runs the favored Santa Clara Valley, with an average width of 15 miles, which is one of the most fertile valleys in the state. The county from the valley slopes upward through rolling hills to the summit of the Santa Cruz Mountains on the west. The county is famous for its large fruit production, especially of prunes.

The roads are excellent, and make all points easily accessible. More than 400 miles of these roads are sprinkled during the summer months.

Educational interests are represented by the Leland Stanford Junior University, University of Santa Clara, the State Normal School, the College of the Pacific, and the College of Notre Dame.

The valley is drained by a number of streams. In summer their watercourses greatly diminish and smaller ones wholly disappear; having their sources in the surrounding hills and sinking as they approach the valley, they augment the subterranean supply of the artesian wells.

(From the Report of the County Horticultural Commissioner.)

Grapevines—	Number	Acreage	Almond	33,100	340
Table grapes		500	Walnut	23,450	700
Wine grapes		7,450			
Total		7,950	Cereals, vegetables and berries—		
Fruit and nut trees—			Wheat		4,250
Apple	60,000	600	Oats		3,300
Apricot	664,200	6,600	Barley		18,335
Cherry	394,500	4,000	Alfalfa		2,750
Pear	4,450	45	Corn		500
Fig	25,000	300	Hay		40,900
Olive	552,000	5,020	Potatoes		1,560
Peach	180,600	1,806	Celery		30
Plum	152,000	1,520	Onions, table		550
Prune	6,100,900	61,010	Onions, seed		1,000
Lemon	18,700	200	Beans		1,800
Lime	500	6	Tomatoes		2,300
Orange	3,300	40	Strawberries		200
Pomelo	500	6	Blackberries		500
			Sugar beets		1,500

SANTA CLARA COUNTY SUMMARY.

(Census 1910.)

Number of Farms Classified by Size.			
Under 3 acres.....	68	Swine—	
3 to 9 acres.....	773	Mature hogs	4,165
10 to 19 acres.....	1,186	Spring pigs	3,184
20 to 49 acres.....	1,317	Total	7,349
50 to 99 acres.....	562	Value	\$61,121
100 to 174 acres.....	376		
175 to 259 acres.....	141	Sheep—	
260 to 499 acres.....	147	Rams, ewes and wethers.....	4,449
500 to 999 acres.....	75	Spring lambs	5,906
1,000 acres and over.....	86	Total	10,055
Total	4,731	Value	\$32,553
Total in 1900.....	3,995		
Land and Farm Areas.		Goats—	
Approximate land, acres.....	849,920	Number	163
Land in farms in 1910.....	734,819	Value	\$665
Land in farms in 1900.....	710,686		
Improved land in farms in 1910.....	237,170	Total value all domestic animals.....	\$3,105,853
Improved land in farms in 1900.....	290,295		
Woodland in farms.....	153,835	Poultry and bees—	
Other unimproved land.....	343,814	Poultry of all kinds.....	209,093
Value of All Farm Property.		Value	\$122,299
Total value in 1910.....	\$67,187,549	Colonies of bees.....	2,542
Total value in 1900.....	50,724,703	Value	\$8,615
Per cent increase, 1900-1910.....	32.5		
Land in 1910.....	52,882,903	Principal Crops.	
Land in 1900.....	42,270,340		
Buildings in 1910.....	9,125,640		
Buildings in 1900.....	5,332,710		
Implements and machinery in 1910.....	1,942,339		
Implements and machinery in 1900.....	1,287,560		
Domestic animals, poultry, and bees			
in 1910.....	3,236,967		
Domestic animals, poultry, and bees			
in 1900.....	1,834,093		
Domestic Animals on Farms and Ranges.			
Cattle*—			
Dairy cows	12,181		
Other cows	12,251		
Yearling heifers	4,449		
Calves	5,443		
Yearling steers and bulls.....	3,133		
Other steers and bulls.....	7,552		
Total	46,030		
Value	*\$1,218,607		
Horses—			
Mature horses	14,405		
Yearling colts	899		
Spring colts	512		
Total	15,816		
Value	\$1,763,731		
Mules—			
Mature mules	267		
Yearling colts	7		
Total	274		
Value	\$29,026		

*Includes animals, age and sex not specified.

SANTA CLARA COUNTY SUMMARY—Continued.

Asses and burros—		Irrigation.	
Number	11	Number of farms irrigated in 1909.....	1,101
Value	\$150	Acres irrigated in 1909.....	37,837
Orchard fruits—		Acres enterprises were capable of	
	Number	irrigating in 1910.....	50,539
Apples	102,841	Acres included in projects.....	60,140
Apricots	783,585	Main ditches, number.....	43
Cherries	173,072	Length, miles	238
Peaches and nectarines.....	437,377	Laterals, number	39
Pears	142,550	Length, miles	27
Prunes and plums.....	3,387,453	Flowing wells, number.....	438
Total	5,043,708	Pumped wells, number.....	800
	Number	Cost of irrigation enterprises up to	
Tropical fruits—		July 1, 1910.....	\$1,537,216
	bearing trees	Average cost per acre irrigation	
Figs	365	enterprises were capable of irrigat-	
Lemons	966	ing in 1910.....	\$36.25
Oranges	1,905		
Pomeloes	57		
Olives	13,945		
Total	18,023		
Grapevines—		Mineral Production in 1916.	
Number in bearing.....	5,584,480	Substance	Amount Value
Small fruits—		Chromite, tons	136 \$2,025
Strawberries, acres	460	Brick, thousands	13,100 82,800
Blackberries and dewberries, acres.....	228	Clay (pottery), tons.....	2,024 2,298
All others, acres	323	Magnesite, tons	23,307 232,156
Total	1,011	Mineral water, gallons.....	50,000 11,300
	Number	Petroleum, barrels	16,368 10,901
Nuts—		Quicksilver, flasks	4,016 375,496
	bearing trees	Stone, miscellaneous	111,974
Almonds	25,862	Other minerals*	23,000
Pecans	136	Total	\$851,948
Walnuts	19,070	Number of mineral springs.....	12
Total	48,398		

*Includes limestone and manganese.

SANTA CRUZ COUNTY.

Date of creation, February 18, 1850. -

	1890	1900	1910	1918 (estimated)
Land area, 435 square miles	Population-- 19,270	21,512	26,140	-----
County seat, Santa Cruz (city).	Population-- 5,586	5,659	11,146	14,594
Population per square mile, 60.1.				

	Highest	Lowest	Inches	Inches
Elevation, 20 feet.	1916: Temperature--- 90	27	Rainfall---34.13	Snow-- 0
	1917: Temperature---101	24	Rainfall---12.37	Snow-- 0

Santa Cruz fronts its entire length on the Pacific Ocean. It is separated from San Mateo and Santa Clara counties by the Santa Cruz Mountains, and from Monterey County by the Pajaro River. It is one of the smallest counties, and comprises a narrow strip of mountainous land about 40 miles long and 18 miles broad, forming a vast amphitheater, and sloping from the summits of the Santa Cruz range, whose highest elevation, Loma Prieta, is 3,793 feet, southward and westward to the bay of Monterey.

The curving line of shore and the corresponding curve of the mountain line inclose an irregular, crescent-shaped tract of country, with an average width of 20 miles. The sides of the mountain are closely set with forests of pine, redwood, madrone, and other trees, the redwoods having in many cases, attained gigantic growth.

The extent of the apple industry is shown by statistics, and is one of the most valuable industries. During the harvesting of the crop in the Pajaro Valley, this industry gives employment to several thousands. The annual shipments of green apples average from 3,500 to 4,000 carloads, and evaporated apples, about 150 to 200 carloads. Growers receive from \$20 to \$25 per ton delivered at the packing house. The leading varieties are Newtown Pippin, Bellflower, Red Pearmain, White Pearmain, Missouri Pippin, Baldwin, Rome Beauty, Spitzenberg, Wine-sap, Langford Seedling, and Ben Davis. The 1917 apple crop was about normal, or 3,600 carloads, but the shipment of fresh fruit was short about 400 cars owing to the large increase in the production of dried apples.

The prices of fresh fruit averaged better than in 1916, and dried apples brought fancy prices, some up to 14 cents a pound.

The apple crop of 1916 amounted to 3,600 cars, represented as follows: Newtown Pippins, 2,100; Bellflowers, 900, and other varieties, 600 cars. An ordinary car is 640 boxes.

Of the small fruits, the strawberry is the most widely grown and furnishes a crop from about April 1 to December 1.

In the southern part of the county a large acreage is devoted to the profitable growth of sugar beets, potatoes, beans, and onions.

Asparagus and rhubarb are grown for outside markets.

Seeds, bulbs, plants, and cut flowers are cultivated on a large scale.

The Santa Cruz Portland cement plant has the largest capacity for the manufacture of cement of any in the state. There is a cold storage plant at Watsonville with a capacity of 500 carloads.

The fish hatchery at Brookdale, on Clear Creek, which was established in 1905, produces large quantities of steelhead trout and also of quinnat salmon and silver salmon.

SHASTA COUNTY.

Date of creation, February 18, 1850.

	1890	1900	1910	1915 (estimated)
Land area, 3,858 square miles.	Population.. 12,133	17,318	18,920	-----
County seat, Redding (city).	Population.. 1,821	2,946	3,572	4,800
Population per square mile, 4.9.				
	Highest	Lowest	Inches	Inches
Elevation, 552 feet.	1916: Temperature...110	24	Rainfall...38.42	Snow...22.0
	1917: Temperature...111	26	Rainfall...22.95	Snow...25.0

Shasta County lies at the head of the famous Sacramento Valley. One mile north of Redding, the county seat, the valley ends and the canyon, second only in fame to the valley, which bears the name of the great waterway in the state, begins.

Covering a portion of eastern Shasta are the Sierra Nevada Mountains and on the northeastern boundary is the Coast Range. These are lofty, some peaks exceeding 5,000 feet in height, and are very rugged. On the extreme eastern border of the county is Lassen Peak, raising its mighty head 10,437 feet above sea level. This peak has attracted much attention in recent years owing to numerous great eruptions. This mountain is timbered two-thirds of the way up. Hot and boiling springs and others noted for their medicinal qualities, abound in this region. The southwestern portion of this section is a succession of rounded hills, varying in height from 50 to 200 feet, while the central and southern portions consist of tablelands, varying in altitude from 500 to 700 feet. Fertile valleys predominate.

Shasta is noted for the number and beauty of its streams. First in importance is the Sacramento River, which enters the county on its northern boundary, traversing it throughout to its southern borders. The Sacramento is augmented by the combined McCloud, Pit, and Fall rivers, the former finding its source at Mount Shasta on the extreme north, enters the county and travels in a southerly direction, emptying into the Pit, which earlier has received the Fall River flow, and continuing still in a southerly course meets and enters the Sacramento at a point a few miles north of Kennett. Most beautiful of all northern streams is the Fall River.

Beautiful resorts and springs abound. The mountains are heavily timbered with sugar pine, cedar, fir, and other valuable timbers.

The prune, peach, pear, and plum thrive, while grapes have proved a success in the valley districts.

Anderson, twelve miles south of Redding, is the leading fruit district and also the lumber center of the county, and Kennett, seventeen miles to the north of the county seat, are the two next important centers.

Shasta's pre-eminence in mineral production is largely due to her immense copper output, which in 1916 amounted to \$9,437,000 pounds, valued at \$9,701,000.

(Information supplied by the Chamber of Commerce.)

While dry farming is carried on successfully irrigation is being inaugurated in different sections of the county. An irrigation system to irrigate about 50,000 acres, under what is known as the Anderson-Cottonwood Irrigation District, has been made.

Redding, the county seat of Shasta County, lies at the extreme head of the Sacramento Valley and on account of its advantageous position is the commercial center of both the mining and agricultural industries. The olive is extensively grown and has become an important factor in the growth of the county.

SHASTA COUNTY SUMMARY.

(Census 1910.)

Number of Farms Classified by Size.			
Under 3 acres	6	Mules—	
3 to 9 acres	16	Mature mules	224
10 to 19 acres	29	Yearling colts	57
20 to 49 acres	103	Spring colts	13
50 to 99 acres	111	Total	294
100 to 174 acres	300	Value	\$23,225
175 to 259 acres	96	Asses and burros—	
260 to 499 acres	190	Number	22
500 to 999 acres	96	Value	\$2,635
1,000 acres and over	66	Swine—	
Total	1,010	Mature hogs	12,882
Total in 1900	1,221	Spring pigs	5,968
Land and Farm Areas.		Total	18,890
Approximate land, acres	2,469,120	Value	\$96,329
Land in farms in 1910	889,218	Sheep—	
Land in farms in 1900	347,120	Rams, ewes, and wethers	11,449
Improved land in farms in 1910	96,217	Spring lambs	5,574
Improved land in farms in 1900	86,540	Total	17,023
Woodland in farms	151,113	Value	\$44,945
Other unimproved land	141,888	Goats—	
Value of All Farm Property.		Number	18,403
Total value in 1910	\$7,847,929	Value	\$41,501
Total value in 1900	4,420,423	Total value all domestic animals	
Per cent increase 1900-1910	77.5		
Land in 1910	5,403,079	Poultry and bees—	
Land in 1900	2,980,620	Poultry of all kinds	85,878
Buildings in 1910	851,750	Value	\$19,226
Buildings in 1900	538,500	Colonies of bees	689
Implements and machinery in 1910	289,511	Value	\$1,620
Implements and machinery in 1900	163,450	Principal Crops.	
Domestic animals, poultry, and bees			
in 1910	1,303,589		
Domestic animals, poultry, and bees			
in 1900	737,853		
Domestic Animals on Farms and Ranges.			
Cattle—			
Dairy cows	2,923	Corn	163
Other cows	15,433	Oats	723
Yearling heifers	3,678	Wheat	3,753
Calves	3,308	Barley	1,296
Yearling steers and bulls	3,197	Dry edible beans	49
Other steers and bulls	5,580	Potatoes	243
Total	84,119	Hay and forage—	
Value	\$677,094	Timothy alone	3,063
Horses—		Timothy and clover mixed	2,165
Mature horses	4,516	Clover alone	269
Yearling colts	488	Alfalfa	6,698
Spring colts	213	Other tame and cultivated	
Total	5,217	grasses	917
Value	\$396,414	Wild, salt, or prairie grasses	13,158
		Grains cut green	8,525
		All other hay and forage	526
		Totals	35,341
			46,578

SHASTA COUNTY SUMMARY—Continued.

Poultry products—			Number
Poultry raised, number.....	52,907		bearing trees
Eggs produced, dozen.....	199,568		
Value poultry and eggs produced...	\$73,787		
Honey and wax—			
Honey produced, pounds.....	8,496		
Wax produced, pounds.....	186		
Value of honey and wax produced	\$1,013		
Wool—			
Wool, fleeces shorn.....	17,862		
Mohair and goat hair, fleeces shorn	11,806		
Value wool and mohair produced...	\$26,706		
Special crops—			
Potatoes, acres.....	248		
Sweet potatoes, acres.....	16		
All other vegetables, acres.....	577		
Principal Crops—Continued.			
	Number		
Orchard fruits—	bearing trees		
Apples.....	35,440		
Apricots.....	889		
Cherries.....	2,785		
Peaches and nectarines.....	98,950		
Pears.....	33,952		
Prunes and plums.....	87,969		
Total.....	202,136		
	Number		
Tropical fruits—	bearing trees		
Figs.....	2,806		
Lemons.....	7		
Oranges.....	55		
Olives.....	9,616		
Total.....	11,986		
Grapevines—			
Number in bearing.....	117,481		
Small fruits—			
Strawberries, acres.....	44		
Blackberries and dewberries, acres.	32		
All others, acres.....	19		
Total, acres.....	95		
Nuts—			
Almonds.....			8,056
Pecans.....			7
Walnuts.....			1,168
Total.....			9,339
Irrigation.			
Number of farms irrigated in 1909...			639
Acres irrigated in 1909.....			33,004
Acceage enterprises were capable of			
irrigating in 1910.....			36,564
Acceage included in projects.....			72,063
Main ditches, number.....			446
Length, miles.....			678
Laterals, number.....			120
Length, miles.....			81
Flowing wells, number.....			2
Pumped wells, number.....			34
Cost of irrigation enterprises up to			
July 1, 1910.....			\$430,766
Average cost per acre irrigation			
enterprises were capable of irrigat-			
ing in 1910.....			\$11.78
Mineral Production in 1916.			
Substance	Amount	Value	
Chromite, tons.....	12,425	\$181,225	
Copper, pounds.....	39,437,196	9,701,550	
Gold.....		936,895	
Lead, pounds.....	478,560	33,031	
Lime and limestone.....		57,903	
Silver.....		1,115,471	
Zinc, pounds.....	9,484,800	1,270,936	
Stone, miscellaneous.....		800	
Other minerals*.....		342,290	
Total.....		\$13,639,506	
Number of mineral springs.....			16

*Includes asbestos, brick, iron ore, manganese, mineral water, platinum, pyrite and silica.

SIERRA COUNTY.

Date of creation, April 16, 1852.

	1890	1900	1910
Land area, 923 square miles.	Population.....	5,051	4,017
County seat, Downsville (township).	Population.....	-----	751
Population per square mile, 4.4.			

	Highest	Lowest	Inches	Inches
Elevation, 3,150 feet.	1916: Temperature...102	6	Rainfall...75.32	Snow...159.7
	1917: Temperature...99	11	Rainfall...46.40	Snow...76.0

Sierra County has an area practically all mountainous. The altitude ranges from 2,000 to 8,600 feet, the highest elevation being that of the Sierra Buttes, but the greater portion has an elevation of from 4,000 to 5,000 feet.

The main ridge of the Sierra Nevada crosses the eastern part from south to north. Several spurs traverse the county from east to west, forming the watersheds of the four principal streams which make the drainage system of the western part. These streams consist of the Middle Yuba River on the south, the North Yuba near the center, and Canyon Creek and Slate Creek on the north, and in the eastern end the many streams that form the headwaters of the Feather and Truckee rivers. Of the peculiar topographical features are the expansive valleys and lakes, lying among the loftiest peaks of the Sierras. The lakes vary from one-eighth of a mile to three or four miles in length, most of them circular, and, considering their small size, are remarkable for their depth.

The important body of agricultural land is Sierra Valley. It extends over the boundary line into Plumas County, and is the largest and the most elevated of the valley of the Sierra, being 4,750 feet above sea level. It is 30 miles in length and 10 miles in width. This valley is particularly adapted to stock raising and dairy purposes. There are several creameries in the valley. The soil is deep, black loam, largely admixed with rich mold.

Since 1849, the principal industry has been gold mining. The value in 1916 was \$724,256.

The greater portion is practically covered with a virgin belt of soft timber. The lumber cut runs into many millions of feet, and the cut over timber land is gradually passing into the hands of stock men for grazing purposes.

SIERRA COUNTY SUMMARY.

(Census 1910.)

Number of Farms Classified by Size.			
Under 3 acres.....	1	Improved land in farms in 1910.....	30,794
3 to 9 acres.....	6	Improved land in farms in 1900.....	28,687
10 to 19 acres.....	8	Woodland in farms.....	18,168
20 to 49 acres.....	4	Other unimproved land.....	85,258
50 to 99 acres.....	5		
100 to 174 acres.....	25	Value of All Farm Property.	
175 to 259 acres.....	4	Total value in 1910.....	\$1,650,799
260 to 499 acres.....	19	Total value in 1900.....	995,395
500 to 999 acres.....	18	Per cent increase, 1900-1910.....	65.8
1,000 acres and over.....	25	Land in 1910.....	962,575
		Land in 1900.....	564,900
		Buildings in 1910.....	262,125
Total.....	110	Buildings in 1900.....	179,770
Total in 1900.....	141	Implements and machinery in 1910...	65,524
		Implements and machinery in 1900...	37,480
Land and Farm Areas.		Domestic animals, poultry and bees	
Approximate land, acres.....	590,720	in 1910.....	380,575
Land in farms in 1910.....	84,220	Domestic animals, poultry and bees	
Land in farms in 1900.....	74,609	in 1900.....	213,155

SIERRA COUNTY SUMMARY—Continued.

Domestic Animals on Farms and Ranges.

Cattle—		
Dairy cows	1,563	
Other cows	2,268	
Yearling heifers	850	
Calves	874	
Yearling steers and bulls	831	
Other steers and bulls	1,401	
Total	7,787	
Value	\$199,156	
Horses—		
Mature horses	1,199	
Yearling colts	155	
Spring colts	40	
Total	1,394	
Value	\$186,605	
Mules—		
Mature mules	20	
Value	\$1,450	
Asses and burros—		
Number	4	
Value	\$325	
Swine—		
Mature hogs	870	
Spring pigs	294	
Total	664	
Value	\$4,198	
Sheep—		
Rams, ewes and wethers	3,005	
Spring lambs	98	
Total	3,098	
Value	\$15,579	
Goats—		
Number	73	
Value	\$184	
Total value all domestic animals	\$357,497	

Poultry and bees—		
Poultry of all kinds	4,458	
Value	\$2,950	
Colonies of bees	49	
Value	\$128	

Principal Crops.

	Acres	Bushels
Corn	1	40
Oats	526	11,431
Wheat	383	6,389
Barley	466	7,362
Potatoes	46	5,016
	Acres	Tons
Hay and forage—		
Timothy alone	388	570
Timothy and clover mixed	1,789	2,620
Clover alone	26	37
Alfalfa	1,125	1,712
Other tame and cultivated		
grasses	839	922
Wild, salt, or prairie grasses	15,772	16,253
Grains cut green	683	720
Totals	20,622	\$22,234

Poultry products—

Poultry raised, number	6,992
Eggs produced, dozen	24,877
Value poultry and eggs produced	\$11,788

Honey and wax—

Honey produced, pounds	2,061
Wax produced, pounds	10
Value of honey and wax produced	\$220

Wool—

Wool, fleeces shorn	2,333
Value wool and mohair produced	\$3,940

Special crops—

Potatoes, acres	46
All other vegetables, acres	35

Orchard fruits—

	Number bearing trees
Apples	3,398
Cherries	67
Peaches and nectarines	157
Pears	146
Prunes and plums	232
Total	4,002

Small fruits—

Strawberries, acres	2
Blackberries and dewberries, acres	1
All others, acres	3
Total	6

Nuts—

	Number bearing trees
Walnuts	24

Irrigation.

Number of farms irrigated in 1909	94
Acres irrigated in 1909	17,504
Acres irrigation enterprises were capable of irrigating in 1910	17,505
Acres included in projects	18,249
Main ditches, number	119
Length, miles	160
Laterals, number	4
Length, miles	1
Cost of irrigation enterprises up to July 1, 1910	\$99,650
Average cost per acre irrigation enterprises were capable of irrigating in 1910	\$3.98

Mineral Production in 1916.

Substance	Value
Gold	\$724,256
Silver	3,291
Other minerals	1,950
Total	\$729,497
Number of mineral springs	2

SISKIYOU COUNTY.

Date of creation, March 22, 1852.

	1890	1900	1910	1915 (estimated)
Land area, 6,256 square miles.	Population.. 12,163	16,962	18,801	-----
County seat, Yreka (town).	Population.. 1,100	1,254	1,134	1,500
Population per square mile, 3.0.				

Sisson (Station):	Highest	Lowest	Inches	Inches
Elevation, 3,555 feet.	1916: Temperature... 95	—1	Rainfall... 33.06	Snow... 212.0
Yreka, 2,625 feet.	1917: Temperature... 105	—3	Rainfall... 33.06	Snow... 25.5

Siskiyou is one of the northern counties of the state, adjoining Oregon for 80 miles on the north. Of its area of 6,256 square miles, 1,500 square miles are valley; the remainder is mountains and forest. Much of the agricultural land is farmed without irrigation, producing good crops of wheat, barley, and in some localities alfalfa and timothy. The so-called desert lands were long considered of little value save for pasturage, but are now being successfully farmed, and require only the application of water to produce abundant crops.

The agricultural lands are chiefly comprised in Scott Valley in the western portion of the county, Shasta Valley and Little Shasta in the central portion, and McCloud and Butte valleys in the eastern portion.

Timber is everywhere; there are thousands of sections that will cut from ten to twenty million feet of yellow and sugar pine, besides large quantities of red fir and cedar.

The Sierra Nevada and Coast Range mountains meet here. The altitude ranges from 2,000 feet in the valleys to 14,000 feet on the mountain peaks, the highest of these being Mount Shasta. There are localities where snow seldom falls, and regions of perpetual snow. These conditions make it one of the most scenic of the counties.

The Marble Mountains, now but little known to tourists, will in time rival the Kings River Canyon and the Yosemite Valley. Chief among the noted resorts are the famous Shasta Springs and Upper Soda Springs, all situated in the Sacramento River Canyon, just over the border of Shasta County. At Sisson, at the base of Mount Shasta, the largest fish hatchery in the United States is located.

Lumbering is the chief industry, with mining and live stock a close second and third.

SISKIYOU COUNTY SUMMARY.

(Census 1910.)

Number of Farms Classified by Size.			
Under 3 acres	1	Improved land in farms in 1910.....	186,147
3 to 9 acres	21	Improved land in farms in 1900.....	181,039
10 to 19 acres	36	Woodland in farms	82,544
20 to 49 acres	88	Other unimproved land.....	187,185
50 to 99 acres	98	Value of All Farm Property.	
100 to 174 acres.....	388	Total value in 1910.....	\$14,370,302
175 to 259 acres.....	84	Total value in 1900.....	7,704,769
260 to 499 acres.....	199	Per cent increase 1900-1910.....	86.3
500 to 999 acres.....	124	Land in 1910.....	10,863,985
1,000 acres and over.....	75	Land in 1900.....	5,084,110
Total	1,114	Buildings in 1910.....	1,411,810
Total in 1900.....	981	Buildings in 1900.....	1,056,390
Land and Farm Areas.		Implements and machinery in 1910...	420,745
Approximate land, acres.....	4,003,840	Implements and machinery in 1900...	284,520
Land in farms in 1910.....	455,876	Domestic animals, poultry, and bees	
Land in farms in 1900.....	452,859	in 1910	2,084,812
		Domestic animals, poultry, and bees	
		in 1900	1,279,749

SISKIYOU COUNTY SUMMARY—Continued.

Domestic Animals on Farms and Ranges.

Cattle*—	
Dairy cows	7,018
Other cows	14,781
Yearling heifers	5,906
Calves	4,919
Yearling steers and bulls	5,869
Other steers and bulls	6,513
Total	45,079
Value	\$1,010,902

Horses—	
Mature horses	7,690
Yearling colts	1,087
Spring colts	428
Total	9,150
Value	\$634,407

Mules—	
Mature mules	390
Yearling colts	76
Spring colts	87
Total	508
Value	\$44,929

Asses and burros—	
Number	22
Value	\$4,610

Swine—	
Mature hogs	6,116
Spring pigs	3,396
Total	9,512
Value	\$68,475

Sheep—	
Rams, ewes, and wethers	18,018
Spring lambs	11,909
Total	29,922
Value	\$99,082

Goats—	
Number	384
Value	\$1,079

Total value all domestic animals \$3,053,544

Poultry and bees—	
Poultry of all kinds	43,413
Value	\$22,563
Colonies of bees	2,776
Value	\$8,700

Principal Crops.

	Acres	Bushels
Corn	89	3,165
Oats	3,148	93,076
Wheat	17,872	224,512
Barley	4,282	60,118
Dry edible beans	10	372
Potatoes	655	76,218

Hay and forage—	Acres	Tons
Timothy alone	1,278	2,871
Timothy and clover mixed	12,792	23,178
Clover alone	163	405
Alfalfa	22,492	43,478
Other tame and cultivated grasses	2,432	5,459
Wild, salt, or prairie grasses	10,114	12,313
Grains cut green	7,651	6,831
All other hay and forage	49	178
Totals	57,976	100,113

Poultry products—	
Poultry raised, number	57,444
Eggs produced, dozens	254,197
Value poultry and eggs produced	\$98,177

Honey and wax—	
Honey produced, pounds	85,322
Wax produced, pounds	324
Value of honey and wax produced	\$3,317

Wool—	
Wool, fleeces shorn	14,976
Mohair and goat hair, fleeces shorn	134
Value wool and mohair produced	\$23,038

Special crops—	
Potatoes, acres	655
All other vegetables, acres	672
Sugar beets, acres	128

Orchard fruits—	Number bearing trees
Apples	31,065
Apricots	356
Cherries	1,350
Peaches and nectarines	4,371
Pears	2,300
Prunes and plums	5,683
Total	45,515

Tropical fruits—	(Number bearing trees
Figs	3
Lemons	1
Total	5

Grapevines—	
Number in bearing	2,673

Small fruits—	
Strawberries, acres	7
Blackberries and dewberries, acres	19
All others, acres	14
Total	31

Nuts—	Number bearing trees
Almonds	33
Pecans	2
Walnuts	30
Total	135

*Includes animals, age and sex not specified.

SISKIYOU COUNTY SUMMARY—Continued.

Irrigation.		Mineral Production in 1916.*		
		Substance	Amount	Value
Number of farms irrigated in 1909....	636	Chromite, tons	2,251	\$28,781
Acres irrigated in 1909.....	60,801	Gold		441,807
Acres enterprises were capable of irrigating in 1910.....	66,806	Mineral water, gallons	502,660	50,530
Acres included in projects.....	79,161	Silver		2,812
Main ditches, number.....	505	Stone, miscellaneous		45,407
Length, miles	688	Other minerals†		12,609
Laterals, number	172			
Length, miles	41	Total		\$580,806
Pumped wells, number.....	8	Number mineral springs.....		28
Cost of irrigation enterprises up to July 1, 1910	\$370,627			
Average cost per acre irrigation enterprises were capable of irrigating in 1910.....	\$5.54			

*The coal deposits north of Yreka, in the vicinity of Hornbrook and Ager, have furnished a small amount of coal for domestic use for several years. It is a good grade of lignite, burns freely and leaves no clinkers.

†Includes copper, "granite" (basalt), lime, platinum and sandstone.

SOLANO COUNTY.

Date of creation, February 18, 1850.

	1890	1900	1910	1915
Land area, 822 square miles.				(estimated)
County seat, Fairfield (town).	Population-- 20,946	24,143	27,559	-----
Population per square mile, 33.5.	-----	-----	834	1,000

Vacaville (Station):	Highest	Lowest	Inches	Inches
Elevation, 175 feet.	1916: Temperature...107	22	Rainfall...36.38	Snow... 7.0
	1917: Temperature...--	--	Rainfall...--	Snow...--

Solano County is about thirty miles north of San Francisco, the great bay system forming its southern boundary. The Sacramento River forms the eastern line, and these bodies of water have created a great acreage, originally swamp land, but with reclamation, capable of producing prodigious crops. There are several delta islands within the county lines. On the west, the county extends into the foothills of the Coast Range, where several warm, sheltered valleys, with rich soil, are the home of the choicest deciduous fruits. In addition, there are sections of plain and rolling land, where cereals are produced and live stock raised in large numbers. The county has 526,000 acres of land, and is small in area, as compared with other counties, but is a leader in material products. In the number and production of bearing pear trees, it stands first in the state, in plums and prunes and in apricots, second; in cherries, third; and in peaches, sixth. There is also a considerable acreage in grapes. The Federal census of 1910 places the annual fruit and nut production at \$1,495,000 and of all crops at \$3,569,000.

There are several mineral springs with commercial outputs, and one producing quicksilver mine.

Manufacturing and industries are a source of great wealth. At Vallejo, the largest city, is the Mare Island Navy Yard. The Sperry flour mills, just completed, are the most modern in the state. Benicia has the United States Arsenal, a great iron working plant; two ship yards, several tanneries, and other industries. Dixon is the center of a splendid dairy section, and Vacaville and Suisun are the shipping points for green and dried fruits. Rio Vista is the main shipping point on the Sacramento River in the county, and is a prosperous community.

Transportation facilities are excellent. The Southern Pacific main line traverses the county, with two branch lines. There are three electric lines in the different sections of the county, while freight and passenger service by water is accessible to nearly every portion of the county effectively regulating charges for freight, and affording splendid accommodations for passengers.

The school facilities are in keeping with the wealth and prosperity of the county. There are six fully equipped high schools, and a complete elementary system, with several private schools of equal merit. Every inducement for home seekers is offered by the county. The warmth of summer is tempered by sea breezes coming from the bays, and severe frosts are very seldom known.

The county is rich and prosperous, with every reason to expect a steady and rapid growth. The population in 1910 was 27,559 and is now estimated at about 40,000.

SOLANO COUNTY SUMMARY.

(Census 1910.)

Number of Farms Classified by Size.		
Under 8 acres.....	6	
8 to 9 acres.....	45	
10 to 19 acres.....	60	
20 to 49 acres.....	198	
50 to 99 acres.....	170	
100 to 174 acres.....	167	
175 to 259 acres.....	89	
260 to 499 acres.....	156	
500 to 999 acres.....	144	
1,000 acres and over.....	108	
Total	1,143	
Total in 1900.....	1,151	
Land and Farm Areas.		
Approximate land, acres.....	526,080	
Land in farms in 1910.....	474,966	
Land in farms in 1900.....	480,551	
Improved land in farms in 1910.....	310,452	
Improved land in farms in 1900.....	344,058	
Woodland in farms.....	44,584	
Other unimproved land.....	119,880	
Value of All Farm Property.		
Total value in 1910.....	\$28,727,683	
Total value in 1900.....	20,780,434	
Per cent increase, 1900-1910.....	38.2	
Land in 1910.....	23,025,081	
Land in 1900.....	16,908,310	
Buildings in 1910.....	2,278,540	
Buildings in 1900.....	1,905,970	
Implements and machinery in 1910.....	767,136	
Implements and machinery in 1900.....	649,321	
Domestic animals, poultry and bees in 1910.....	2,656,926	
Domestic animals, poultry and bees in 1900.....	1,821,834	
Domestic Animals on Farms and Ranges.		
Cattle—		
Dairy cows	9,279	
Other cows	4,257	
Yearling heifers	1,983	
Calves	3,720	
Yearling steers and bulls.....	1,187	
Other steers and bulls.....	1,408	
Total	21,784	
Value	\$605,878	
Horses—		
Mature horses	6,993	
Yearling colts	606	
Spring colts	362	
Total	8,060	
Value	\$384,500	
Mules—		
Mature mules	2,157	
Yearling colts	84	
Spring colts	78	
Total	2,319	
Value	\$295,866	
Asses and burros—		
Number	23	
Value	\$2,800	
Swine—		
Mature hogs	8,836	
Spring pigs	4,732	
Total	15,568	
Value	\$89,528	
Sheep—		
Rams, ewes and wethers.....	96,921	
Spring lambs	73,232	
Total	170,153	
Value	\$737,457	
Goats—		
Number	392	
Value	\$1,218	
Total value all domestic animals.....	\$2,616,747	
Poultry and bees—		
Poultry of all kinds.....	74,083	
Value	\$39,384	
Colonies of bees.....	256	
Value	\$795	
Principal Crops.		
	Acres	Bushels
Corn	91	985
Oats	1,306	25,711
Wheat	20,924	391,753
Barley	41,647	1,263,857
Dry edible beans.....	2,553	65,755
Potatoes	311	42,416
Hay and forage—		Tons
Timothy alone	2,506	2,856
Timothy and clover mixed.....	375	381
Clover alone	60	174
Alfalfa	2,145	10,617
Other tame and cultivated grasses.....	381	636
Wild, salt, or prairie grasses.....	496	771
Grains cut green.....	33,641	41,552
All other hay and forage.....	29	41
Totals	39,693	57,028
Poultry products—		
Poultry raised, number.....	66,403	
Eggs produced, dozen.....	426,261	
Value poultry and eggs produced.....	\$128,295	
Honey and wax—		
Honey produced, pounds.....	2,873	
Value of honey and wax produced.....	\$491	
Wool—		
Wool, fleeces shorn.....	157,499	
Mohair and goat hair, fleeces shorn.....	3	
Value wool and mohair produced.....	\$161,313	

SOLANO COUNTY SUMMARY—Continued.

Special crops—			Nuts—		Number bearing trees
Potatoes, acres	811		Almonds		98,276
All other vegetables, acres	650		Pecans		134
Sugar beets, acres	4		Walnuts		1,876
			Total		100,289
Orchard fruits—		Number bearing trees	Irrigation.		
Apples	4,862		Number of farms irrigated in 1909..		150
Apricots	310,262		Acres irrigated in 1909		3,610
Cherries	53,923		Acres enterprises were capable of irrigating in 1910		7,100
Peaches and nectarines	841,266		Acres included in projects		8,192
Pears	182,194		Main ditches, number		20
Prunes and plums	465,341		Length, miles		22
Total	1,357,911		Pumped wells, number		125
Tropical fruits—		Number bearing trees	Cost of irrigation enterprises up to July 1, 1910		\$135,532
Figs	4,598		Average cost per acre irrigation enterprises were capable of irrigating in 1910		\$18.93
Lemons	126		Mineral Production in 1916.		
Oranges	2,950		Substance	Amount	Value
Pomeloes	15		Mineral water, gallons	11,200	\$3,750
Olives	1,221		Quicksilver, flasks	660	61,710
Total	8,911		Stone, miscellaneous		49,711
Grapevines—			Other minerals*		1,090,164
Number in bearing	1,213,265		Total		\$1,205,335
Small fruits—			Number of mineral springs		2
Strawberries, acres	5				
Blackberries and dewberries, acres ..	5				
All others, acres	2				
Total	12				

*Includes cement, natural gas and salt.

SONOMA COUNTY.

(Census 1910.)

Date of creation, February 18, 1850.

		1890	1900	1910	1915 (estimated)
Land area, 1,577 square miles.	Population--	32,721	38,480	48,394	-----
County seat, Santa Rosa (city).	Population--	5,220	6,673	7,817	11,000
Population per square mile, 30.7.					

		Highest	Lowest	Inches	Inches
Elevation, 181 feet.	1916: Temperature---	97	21	Rainfall...32.35	Snow... 0
	1917: Temperature---	111	23	Rainfall...15.49	Snow... 0

Sonoma County is bounded on the west by the Pacific Ocean, for more than 65 miles that boundary conforming to the irregularities of the shore, while on San Pablo Bay it has a frontage of 20 miles.

The great central valley extends the entire length of the county from south to north. The area on which rough stone interferes with farming operations is small. Out of the area of land in the county at least 200,000 acres are valley land, the richest soil known, being a black loam; 200,000 acres are rolling, or higher tableland, of exceedingly rich, alluvial, brown soil, with considerable sand. This is the best fruit land. At least 100,000 acres of mountain land are adapted to grazing, and about 80,000 acres are covered with redwood timber of a magnificent growth.

Sonoma Valley is about 20 miles in length, with an average width of 8 miles. It lies parallel to Petaluma Valley, from which it is separated by a range of mountains.

The streams and watercourses of Sonoma County are numerous. Russian River, the largest stream, enters on the north, flows in a southeasterly direction for 20 miles, turns at Fitch Mountain and finds its way to the largest depression in the Santa Rosa Basin, from which it breaks through a gap in the Coast Range to the Pacific Ocean. This river gathers the waters from three-fifths of the area of the county. Owing to the abundant rainfall little or no irrigation is required, as is the case in some of the valley counties.

Sonoma County has a large acreage in wine grapes, most of which are made into dry wines. Besides wine, fruit, dairy and stock industries, the county produces more poultry and eggs than any other part of the state. The county also produces a large quantity of prunes. In 1917 the acreage was estimated at 6,000, and the crop at 14,000 tons. The lowest average price paid was $4\frac{1}{2}$ cents, and the highest 7 cents a pound. Olive culture is increasing. Sonoma and Sacramento counties are the largest producers of hops in the state. In 1912 Sonoma produced 35,712 bales of hops, in 1914, 24,284 bales, and in 1915, 29,790 bales.

Cattle are raised on a large scale, principally for dairying purposes.

SONOMA COUNTY SUMMARY.

(Census 1910.)

Number of Farms Classified by Size.	
Under 3 acres.....	40
3 to 9 acres.....	916
10 to 19 acres.....	800
20 to 49 acres.....	1,040
50 to 99 acres.....	522
100 to 174 acres.....	506
175 to 259 acres.....	233
260 to 499 acres.....	299
500 to 999 acres.....	202
1,000 acres and over.....	122
Total.....	4,772
Total in 1900.....	3,676
Land and Farm Areas.	
Approximate land, acres.....	1,009,280
Land in farms in 1910.....	744,644
Land in farms in 1900.....	785,064
Improved land in farms in 1910.....	248,271
Improved land in farms in 1900.....	221,374
Woodland in farms.....	278,507
Other unimproved land.....	217,866
Value of All Farm Property.	
Total value in 1910.....	\$55,851,049
Total value in 1900.....	33,071,707
Per cent increase, 1900-1910.....	67.4
Land in 1910.....	41,512,706
Land in 1900.....	25,286,750
Buildings in 1910.....	8,758,787
Buildings in 1900.....	4,646,580
Implements and machinery in 1910.....	1,326,832
Implements and machinery in 1900.....	847,240
Domestic animals, poultry and bees in 1910.....	3,752,724
Domestic animals, poultry and bees in 1900.....	2,291,137
Domestic Animals on Farms and Ranges.	
Cattle*—	
Dairy cows.....	24,961
Other cows.....	5,885
Yearling heifers.....	4,804
Calves.....	9,517
Yearling steers and bulls.....	1,805
Other steers and bulls.....	1,705
Total.....	48,727
Value.....	*\$1,166,971
Horses—	
Mature horses.....	12,611
Yearling colts.....	733
Spring colts.....	384
Total.....	13,728
Value.....	\$1,355,510
Mules—	
Mature mules.....	388
Yearling colts.....	8
Spring colts.....	2
Total.....	398
Value.....	\$48,025
Asses and burros—	
Number.....	28
Value.....	\$620

Swine—	
Mature hogs.....	10,906
Spring pigs.....	7,428
Total.....	18,433
Value.....	\$125,448
Sheep—	
Rams, ewes and wethers.....	44,005
Spring lambs.....	21,230
Total.....	65,315
Value.....	\$224,274
Goats—	
Number.....	2,991
Value.....	7,962
Total value all domestic animals.....	\$2,928,810
Poultry and bees—	
Poultry of all kinds.....	1,362,399
Value.....	\$621,299
Colonies of bees.....	824
Value.....	\$2,615
Principal Crops.	
	Acres
Corn.....	1,681
Oats.....	468
Wheat.....	56
Barley.....	361
Dry edible beans.....	7
Potatoes.....	2,279
Hay and forage—	Acres
Timothy alone.....	50
Timothy and clover mixed.....	22
Clover alone.....	251
Alfalfa.....	5,565
Other tame and cultivated grasses.....	1,509
Wild, salt, or prairie grasses.....	6,507
Grains cut green.....	47,021
All other hay and forage.....	1,426
Totals.....	62,351
Poultry products—	
Poultry raised, number.....	1,512,601
Eggs produced, dozens.....	9,470,880
Value poultry and eggs produced.....	\$3,038,518
Honey and wax—	
Honey produced, pounds.....	7,014
Wax produced, pounds.....	44
Value of honey and wax produced.....	\$941
Wool—	
Wool, fleeces shorn.....	75,925
Mohair and goat hair, fleeces shorn.....	2,330
Value wool and mohair produced.....	\$74,951
Special crops—	
Potatoes, acres.....	2,279
All other vegetables, acres.....	954
Orchard fruits—	Number bearing trees
Apples.....	386,740
Apricots.....	9,087
Cherries.....	43,982

*Includes animals, age and sex not specified.

Principal Crops—Continued.

Tropical fruits—	Number
Figs	bearing trees
Lemons	3,850
Oranges	396
Pomeños	5,047
Olives	8
Total	10,863
Grapevines—	
Number in bearing	17,939,972
Small fruits—	
Strawberries, acres	103
Blackberries and dewberries, acres	990
All others, acres	438
Total	1,471
Nuts—	Number
Almonds	bearing trees
Pecans	2,863
Walnuts	43
Total	11,955
Total	16,631

Number of farms irrigated in 1909.....	38
Acres irrigated in 1919.....	631
Acreeage enterprises were capable of irrigating in 1910.....	761
Acreeage included in projects.....	961
Main ditches, number.....	32
Length, miles.....	21
Pumped wells, number.....	11
Cost of irrigation enterprises up to July 1, 1910.....	\$13,801
Average cost per acre irrigation enterprises were capable of irrigat- ing in 1910.....	18.14

Substance	Amount	Value
Chromite, tons -----	243	\$2,478
Magnetite, tons -----	11,653	98,280
Mineral water, gallons -----	121,366	28,031
Quicksilver, flasks -----	1,039	97,146
Stone, miscellaneous -----		232,113
Other minerals* -----		14,000
Total -----		\$472,048
Number of mineral springs -----		21

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STANISLAUS COUNTY.

Date of creation, April 1, 1854.

	1890	1900	1910	1915 (estimated)
Land area, 1,450 square miles.	Population... 10,040	9,550	22,522	-----
County seat, Modesto (city).	Population... 2,402	2,024	4,084	7,200
Population per square mile, 15.5.				

Newman (Station):	Highest	Lowest	Inches	Inches
Elevation, 91 feet.	1916: Temperature... 105	21	Rainfall... 14.00	Snow... 4.0
	1917: Temperature... 106	18	Rainfall... 5.10	Snow... 0

Stanislaus County lies in the northern end of the great San Joaquin Valley, 114 miles from San Francisco and 30 miles from tidewater on the San Joaquin River. It is bounded by the Sierra Nevada Mountains on the east and the Coast Range Mountains on the west. The county is drained by three large rivers, the Stanislaus, the Tuolumne, and the San Joaquin. The soil ranges from a light sandy loam in the southerly part to a heavy sandy loam in the central part and adobe and redlands in the east. The county is crossed by four lines of railways, while the Sierra Road connects Oakdale and vicinity with the mountain counties to the north.

The county has a large acreage in barley, oats and wheat, and is the largest producer of butter in the state, the total quantity in 1916 being 8,935,964 pounds. Fruits also grow well, especially peaches, apricots, and figs.

STANISLAUS COUNTY SUMMARY.

(Census 1910.)

Number of Farms Classified by Size.			
Under 3 acres.....	13	Buildings in 1910.....	3,330,475
3 to 9 acres.....	153	Buildings in 1900.....	1,237,900
10 to 19 acres.....	319	Implements and machinery in 1910.....	830,079
20 to 49 acres.....	1,045	Implements and machinery in 1900.....	537,380
50 to 99 acres.....	439	Domestic animals, poultry and bees	
100 to 174 acres.....	192	in 1910.....	4,323,090
175 to 259 acres.....	83	Domestic animals, poultry and bees	
260 to 499 acres.....	125	in 1900.....	1,561,920
500 to 999 acres.....	142		
1,000 acres and over.....	175	Domestic Animals on Farms and Ranges.	
Total.....	2,637	Cattle*—	
Total in 1900.....	961	Dairy cows.....	20,678
		Other cows.....	9,047
		Yearling heifers.....	5,294
		Calves.....	7,352
		Yearling steers and bulls.....	2,922
		Other steers and bulls.....	3,765
		Total.....	49,132
		Value.....	*\$1,728,608
		Horses*—	
		Mature horses.....	11,818
		Yearling colts.....	1,120
		Spring colts.....	619
		Total.....	14,357
		Value.....	*\$1,555,390

Value of All Farm Property.

Total in 1910.....	\$48,787,897
Total value in 1900.....	17,061,960
Per cent increase, 1900-1910.....	157.1
Land in 1910.....	35,324,748
Land in 1900.....	12,674,850

*Includes animals, age and sex not specified.

STANISLAUS COUNTY SUMMARY—Continued.

Domestic Animals on Farms and Ranges—Continued.		
Mules—		
Mature mules	5,082	
Yearling colts	226	
Spring colts	174	
Total	5,442	
Value	\$703,567	
Asses and burros—		
Number	81	
Value	\$7,885	
Swine—		
Mature hogs	13,610	
Spring pigs	9,417	
Total	23,027	
Value	\$158,491	
Sheep—		
Rams, ewes and wethers	15,874	
Spring lambs	7,378	
Total	23,252	
Value	\$36,005	
Goats—		
Number	217	
Value	575	
Total value all domestic animals	\$4,240,461	
Poultry and bees—		
Poultry of all kinds	128,905	
Value	\$74,116	
Colonies of bees	2,554	
Value	\$8,423	
Principal Crops.		
	Acres	Bushels
Corn	602	12,297
Oats	38,546	688,542
Wheat	22,068	258,121
Barley	57,529	823,628
Kafir corn and milo maize	4,448	81,343
Dry edible beans	873	4,895
Potatoes	207	17,502
Hay and forage—		
	Acres	Tons
Timothy alone	180	40
Clover alone	10	30
Alfalfa	40,917	149,214
Other tame and cultivated grasses	3,350	2,889
Wild, salt, or prairie grasses	7,400	4,976
Grains cut green	16,847	19,633
All other hay and forage	748	2,361
Totals	69,432	178,643
Poultry products—		
Poultry raised, number	121,677	
Eggs produced, dozen	648,248	
Value poultry and eggs produced	\$237,685	
Honey and wax—		
Honey produced, pounds	61,592	
Wax produced, pounds	1,371	
Value of honey and wax produced	\$5,160	
Wool—		
Wool, fleeces shorn	22,837	
Mohair and goat hair, fleeces shorn	50	
Value wool and mohair produced	\$22,700	
Special crops—		
Potatoes, acres	207	
Sweet potatoes, acres	1,647	
All other vegetables, acres	1,631	
Orchard fruits—		
		Number bearing trees
Apples		3,690
Apricots		20,451
Cherries		1,132
Peaches and nectarines		154,558
Pears		4,158
Prunes and plums		6,095
Total		190,515
Tropical fruits—		
		Number bearing trees
Figs		37,676
Lemons		576
Oranges		10,492
Pomeles		18
Olives		5,458
Total		54,291
Grapevines—		
Number in bearing		1,982,302
Small fruits—		
Strawberries, acres		95
Blackberries and dewberries, acres		58
All others, acres		18
Total		161
Nuts—		
		Number bearing trees
Almonds		33,726
Pecans		25
Walnuts		864
Total		34,701
Irrigation.		
Number of farms irrigated in 1909		1,911
Acres irrigated in 1909		84,015
Acresage enterprises were capable of irrigating in 1910		141,785
Acresage included in projects		340,914
Main ditches, number		23
Length, miles		153
Laterals, number		84
Length, miles		274
Pumped wells, number		3
Cost of irrigation enterprises up to July 1, 1910		\$4,051,870
Average cost per acre irrigation enterprises were capable of irrigating in 1910		\$28.58
Mineral Production in 1916.		
Substance	Amount	Value
Manganese, tons	180	\$2,400
Mineral paint, tons	507	2,200
Stone, miscellaneous		17,784
Other minerals		230,698
Total		\$253,022
Number of mineral springs		

*Includes chromite, brick, gold, platinum, quicksilver and silver.

SUTTER COUNTY.

Date of creation, February 18, 1850.

	1890	1900	1910	1916 (estimated)
Land area, 608 square miles.	Population-- 5,469	5,886	6,328	-----
County seat, Yuba City (town).	Population-- -----	-----	1,160	1,700
Population per square mile, 10.4.				

Elevation, 57 feet. (No observation station in county. Figures practically the same as for Marysville, Yuba County, which adjoins.)

Almost in the center of the far-famed valley of the Sacramento is located the county of Sutter, the larger portion of which lies between the Sacramento and Feather rivers directly at their confluence. The remaining portion of the county lies east of the Feather River, just south of Bear River. Surrounded by rivers on almost every side, it is evident that the soil of the county is largely river made, the wash of a thousand years from the Sierra Nevada and Coast Range mountains, and is deep and fertile, the equal of any in the whole state of California.

The western portion of Sutter County in particular is being rapidly developed. The large land holdings are being cut up and sold out in small tracts. Meridian is a prosperous little town, located in the western portion of the county, as well as Live Oak, in the northern part, and Nicolaus in the southern division.

The county has a large acreage in beans, much of the land in the Sutter basin being devoted to this crop.

The dairy industry is thriving, and there are a number of large creameries.

Sutter County is the home of the Thompson seedless grape, which is being grown so extensively in various valleys of the state. Most other fruits are grown with great success, especially cling peaches, the production having increased from about 9,700 tons in 1915, to 17,000 tons in 1917.

SUTTER COUNTY SUMMARY.

(Census 1910.)

Number of Farms Classified by Size.		Value of All Farm Property.	
3 to 9 acres.....	57	Total value in 1910.....	\$19,115,596
10 to 19 acres.....	101	Total value in 1900.....	9,182,731
20 to 49 acres.....	142	Per cent increase, 1900-1910.....	108.2
50 to 99 acres.....	91	Land in 1910.....	14,809,242
100 to 174 acres.....	123	Land in 1900.....	6,976,320
175 to 259 acres.....	84	Buildings in 1910.....	2,032,535
260 to 499 acres.....	123	Buildings in 1900.....	\$987,700
500 to 999 acres.....	78	Implements and machinery in 1910.....	458,379
1,000 acres and over.....	74	Implements and machinery in 1900.....	313,780
Total.....	873	Domestic animals, poultry and bees	
Total in 1900.....	728	In 1910.....	1,755,547
		Domestic animals, poultry and bees	
		in 1900.....	904,931
		Domestic Animals on Farms and Ranges.	
		Cattle*—	
		Dairy cows.....	6,728
		Other cows.....	3,254
		Yearling heifers.....	1,939
		Calves.....	2,623
		Yearling steers and bulls.....	1,012
		Other steers and bulls.....	823
		Total.....	16,004
		Value.....	\$465,202

*Includes animals, age and sex not specified.

SUTTER COUNTY SUMMARY—Continued.

Horses—			Honey and wax—		
Mature horses	4,809		Honey produced, pounds.....	76,812	
Yearling colts	587		Wax produced, pounds.....	745	
Spring colts	228		Value of honey and wax produced	\$4,909	
Total	5,624		Wool—		
Value	\$573,051		Wool, fleeces shorn.....	149,821	
Mules—			Mohair and goat hair, fleeces shorn	800	
Mature mules	1,922		Value wool and mohair produced..	\$110,738	
Yearling colts	107		Special crops—		
Spring colts	67		Potatoes, acres	218	
Total	2,096		Sweet potatoes, acres.....	41	
Value	\$272,402		All other vegetables, acres.....	303	
Asses and burros—			Sugar beets, acres.....	27	
Number	20		Orchard fruits—		
Value	\$6,670				Number
Swine—					bearing trees
Mature hogs	9,121		Apples	5,433	
Spring pigs	6,008		Apricots	5,086	
Total	15,129		Cherries	1,249	
Value	\$106,752		Peaches and nectarines.....	149,057	
Sheep—			Pears	17,911	
Rams, ewes and wethers.....	51,135		Prunes and plums.....	65,723	
Spring lambs	38,530		Total	244,587	
Total	89,665		Tropical fruits—		
Value	\$284,023				Number
Goats—					bearing trees
Number	511		Figs	4,675	
Value	\$2,081		Lemons	602	
Total value all domestic animals	\$1,709,131		Oranges	2,427	
Poultry and bees—			Pomeles	13	
Poultry of all kinds.....	68,861		Olives	8,018	
Value	\$38,690		Total	10,741	
Colonies of bees	2,065		Grapevines—		
Value	\$7,726				Number
Principal Crops.					bearing trees
			Number in bearing.....	1,249,923	
Corn	Acres	Bushels	Small fruits—		
Oats	761	22,373			
Wheat	3,568	56,823	Strawberries, acres	1	
Barley	14,537	176,750	Blackberries and dewberries, acres..	7	
Kafir corn and milo maize.....	27,457	491,720	All others, acres.....	8	
Dry edible beans	352	7,750	Total	16	
Potatoes	2,766	76,201	Nuts—		
Hay and forage—	218	23,419			Number
Timothy and clover mixed..	Acres	Tons			bearing trees
Clover alone	80	80	Almonds	61,572	
Alfalfa	415	2,525	Pecans	11	
Other tame and cultivated	7,388	21,791	Walnuts	671	
grasses	703	1,003	Total	62,259	
Wild, salt, or prairie grasses	7,466	9,020	Irrigation.		
Grains cut green.....	14,744	20,612			
All other hay and forage....	1,948	1,966	Number of farms irrigated in 1909...	89	
Total	32,744	57,017	Acres irrigated in 1909.....	1,173	
Poultry products—			Acresage enterprises were capable of		
Poultry raised, number.....	101,908		irrigating in 1910.....	1,361	
Eggs produced, dozens.....	420,196		Acresage included in projects.....	1,969	
Value poultry and eggs produced..	\$167,240		Main ditches, number.....	13	
			Length, miles	6	
			Pumped wells, number.....	18	
			Cost of irrigation enterprises up to		
			July 1, 1910.....	\$18,800	
			Average cost per acre irrigation		
			enterprises were capable of irrigat-		
			ing in 1910.....	\$13.81	
			Mineral Production.*		
					Value
			Substance		
			Stone, miscellaneous	\$6,450	

*Sutter is one of only two counties in the state which for a number of years reported no commercial output of some kind of mineral substance. In 1916 some crushed rock was taken out, from the Marysville Buttes, as indicated above. Both clay and coal exist here, but deposits of neither mineral have been placed on a productive basis.

TEHAMA COUNTY.

Date of creation, April 9, 1856.

		1890	1900	1910	1915 (estimated)
Land area, 2,893 square miles.	Population..	9,916	10,996	11,401	-----
County seat, Red Bluff (city).	Population..	2,608	2,750	3,530	5,072
Population per square mile, 3.9.					

		Highest	Lowest	Inches	Inches
Elevation, 307 feet.	1916: Temperature....	113	27	Rainfall...20.09	Snow...11.6
	1917: Temperature....	110	24	Rainfall...14.16	Snow... 0

(Information Supplied by Chamber of Commerce.)

General Description. Tehama County occupies the upper or northern portion of the Sacramento Valley. It is 200 miles north of San Francisco and 120 miles north of Sacramento. Part of its eastern boundary follows the summit of the Sierra Nevada Mountains, and its western boundary lies along the summit of the Coast Range. Its greatest length from east to west is 78 miles; its width from north to south, 38 miles.

The Sacramento River is navigable to Red Bluff and steamboats from San Francisco and Sacramento make trips up and down most of the year. The Sacramento River runs through the county from north to south. From this river there is a rise to the east and west until the summit of the mountain range is reached. South of Red Bluff and west of the river lie broad plains, beyond this, rolling hills developing into the foothills of the mountains, and then the mountains themselves, which rise quite abruptly to a height of from 3,000 to 9,000 feet.

Irrigation. Irrigation of the lands in the county is a very important factor in the production of crops, water being pumped from the river, creeks and wells. In the Los Molinos Colony a good-sized gravity system of irrigation is now completed, the water being taken from Mill Creek, by the construction of a dam, and from the same stream there are several other diversions irrigating several thousand acres. From Deer Creek they are irrigating many thousand acres including the Leland Stanford Jr. University Ranch at Vina, Cal. From Antelope Creek water is diverted for use of the city of Red Bluff and for the irrigation of the Cone Ranch and a portion of Los Molinos Colony.

Industries. The principal industries are horticulture, agriculture, stock raising and lumbering. Mining of chrome ore in the western part of the county has become of considerable importance in the building up of the community, and more mines are being opened now on account of the great demand for chrome, caused by the war.

Olives. The growing of olives in the county has developed into an industry that will make the county famous as a producer of fine olives and olive oil. Two plants for pickling olives are now in operation at Corning, and we have over 500 acres of bearing trees.

Alfalfa. In Agriculture there has been a gradual change from the growing of wheat and other grains, to fruits, alfalfa, etc. Alfalfa, also grain hay, is grown in quantities to feed the stock and supply the demand of the Alfalfa Meal Company, where large quantities of alfalfa are ground into meal and shipped to all parts of the world.

Apples. Apples are grown only in the foothills. The chief apple-producing region of the county is at Manton, 35 miles to the northeast of Red Bluff, where very fine fruit is raised.

Berries and all small fruits do well. They come into the market early and sell readily.

Sheep. Tehama County is one of the principal counties in northern California, if not in the state, in the production of wool and mutton. The favored breeds of sheep are the various types of the Merino for wool, Shropshires and Hampshires for mutton. For both purposes crosses of Lincolns, Cotswolds and Corriedales are bred to a great extent.

Goats. Of late years Angora goats have come into greater favor as they thrive on the brushy hillside, and their wool is in great demand and brings good prices.

Hogs. Hog-raising in Tehama County offers wonderful opportunities. This part of our stock-raising industry has kept pace with our general development, and has shown an increase from 10 to 15 per cent since 1910.

Bees. Bee keeping is steadily increasing in the alfalfa section of the county, and shows a 43 per cent increase in the last five years.

Cattle. There is in Tehama County some of the finest cattle in the state, and the largest cattle company in northern California operates from the county seat. There are some 30,000 head of fine beef and dairy cattle, and one of the finest Holstein dairy herds in the world is being developed and for years has been considered the home of fine Holsteins. This herd is located at the Leland Stanford Jr. University Ranch at Vina.

Faith in Tehama County peaches and prunes grows every year, there being 700 acres of nonbearing peaches and 1,000 acres of young prunes.

TEHAMA COUNTY SUMMARY.

(Census 1910.)

Number of Farms Classified by Size.		Implements and machinery in 1910...	
Under 3 acres.....	7	Implements and machinery in 1900....	\$494,982
3 to 9 acres.....	34	Domestic animals, poultry and bees	440,020
10 to 19 acres.....	119	in 1910	2,150,425
20 to 49 acres.....	198	Domestic animals, poultry and bees	
50 to 99 acres.....	102	in 1900	1,778,104
100 to 174 acres.....	151	Domestic Animals on Farms and Ranges.	
175 to 259 acres.....	51	Cattle—	
260 to 499 acres.....	119	Dairy cows	3,462
500 to 999 acres.....	86	Other cows	10,691
1,000 acres and over.....	139	Yearling heifers	2,646
Total	1,006	Calves	3,520
Total in 1900.....	1,055	Yearling steers and bulls.....	2,590
Land and Farm Areas.		Other steers and bulls.....	2,400
Approximate land, acres.....	1,851,520	Total	25,309
Land in farms in 1910.....	915,227	Value	\$512,747
Land in farms in 1900.....	950,768	Horses—	
Improved land in farms in 1910.....	186,642	Mature horses	5,073
Improved land in farms in 1900.....	269,693	Yearling colts	525
Woodland in farms.....	206,234	Spring colts	278
Other unimproved land.....	522,851	Total	5,876
Value of All Farm Property.		Value	\$464,472
Total value in 1910.....	\$16,821,178	Mules—	
Total value in 1900.....	16,030,104	Mature mules	1,409
Per cent increase, 1900-1910.....	4.9	Yearling colts	163
Land in 1910.....	12,932,446	Spring colts	103
Land in 1900.....	11,720,120	Total	1,675
Buildings in 1910.....	1,234,375	Value	\$171,979
Buildings in 1900.....	2,091,860		

TEHAMA COUNTY SUMMARY—Continued.

Domestic Animals on Farms and Ranges—Continued.			Special crops—		
Asses and burros—			Potatoes, acres		113
Number	23		Sweet potatoes, acres		30
Value	\$7,890		All other vegetables, acres		292
Swine—			Orchard fruits—	Number	
Mature hogs	10,915		Apples	bearing trees	15,632
Spring pigs	4,025		Apricots		30,446
Total	14,940		Cherries		624
Value	\$75,941		Peaches and nectarines		200,204
Sheep—			Pears		41,584
Rams, ewes and wethers	185,023		Prunes and plums		92,430
Spring lambs	112,713		Total		441,070
Total	297,736		Tropical fruits—	Number	
Value	\$360,456		Figs	bearing trees	3,176
Goats—			Lemons		356
Number	28,473		Oranges		10,744
Value	\$36,325		Pomelos		5
Total value all domestic animals	\$2,119,800		Olives		17,573
Poultry and bees—			Total		31,654
Poultry of all kinds	59,852		Grapevines—		
Value	\$37,980		Number in bearing		1,307,318
Colonies of bees	786		Small fruits—		
Value	\$1,636		Strawberries, acres		30
Principal Crops.			Blackberries and dewberries, acres		7
			All others, acres		6
			Total		49
			Nuts—	Number	
			Almonds	bearing trees	32,919
			Pecans		10
			Walnuts		1,569
			Total		34,555
			Irrigation.		
			Number of farms irrigated in 1909		366
			Acres irrigated in 1909		14,281
			Acceage enterprises were capable of		
			irrigating in 1910		23,167
			Acceage included in projects		36,028
			Main ditches, number		136
			Length, miles		164
			Laterals, number		41
			Length, miles		40
			Flowing wells, number		1
			Pumped wells, number		141
			Cost of irrigation enterprises up to		
			July 1, 1910		\$263,055
			Average cost per acre irrigation		
			enterprises were capable of irrigat-		
			ing in 1910		11.36
			Mineral Production in 1916.		
			Substance	Amount	Value
			Chromite, tons	1,896	\$39,702
			Stone, miscellaneous		11,076
			Other minerals*		3,575
			Total		\$54,353
			Number of mineral springs		11

*Includes brick, granite, mineral water and natural gas.

TRINITY COUNTY.

Date of creation, February 18, 1850.

Land area, 3,166 square miles.	Population.....	1890	1900	1910
County seat, Weaverville (township).	Population.....	3,719	4,383	3,301
Population per square mile, 1.0.		768	968	674

	Highest	Lowest	Inches	Inches
Elevation, 2,162 feet.	1916: Temperature....	107	7 Rainfall....	32.06 Snow....
	1917: Temperature....	107	5 Rainfall....	24.82 Snow....
				63.0
				24.0

Trinity County is situated in the Coast Range of mountains and is well drained by the Trinity, Mad, Eel, and Van Duzen rivers, and is well watered by the numerous creeks that carry streams of water from the mountain snows to the rivers and their tributaries. The higher mountain ranges, being covered with snow during the winter season, give ample supply for irrigation, and also provide an abundance of pastureage on the mountains. Trinity is bounded on the north by Siskiyou, on the east by Shasta and Tehama, on the south by Mendocino, and on the west by Humboldt County, thus being on the great mineral belt of the northwestern part of the state. Mining for gold has been the principal industry for fifty years. Hydraulic, placer, drift placer, dredge, and quartz mining have produced profitable results. In 1916 the production of gold was valued at \$435,493. Many other valuable minerals have been found, but owing to the lack of cheap transportation facilities, none of them has been developed to any extent. With an abundance of sugar pine, yellow pine, and fir timber ready for the market, the lumbering interests will be extensive as soon as railroad transportation is provided.

TRINITY COUNTY SUMMARY.

(Census 1910.)

Number of Farms Classified by Size.		Domestic animals, poultry and bees	
Under 3 acres.....	6	in 1910	\$347,235
3 to 9 acres.....	9	Domestic animals, poultry and bees	
10 to 19 acres.....	9	in 1900	254,639
20 to 49 acres.....	24		
50 to 99 acres.....	23	Domestic Animals on Farms and Ranges.	
100 to 174 acres.....	148	Cattle—	
175 to 259 acres.....	23	Dairy cows	874
260 to 499 acres.....	41	Other cows	5,143
500 to 999 acres.....	15	Yearling heifers	1,415
1,000 acres and over.....	10	Calves	1,126
Total	306	Yearling steers and bulls.....	1,806
Total in 1900.....	272	Other steers and bulls.....	2,069
Land and Farm Areas.		Total	11,885
Approximate land, acres.....	2,026,240	Value	\$211,324
Land in farms in 1910.....	91,310		
Land in farms in 1900.....	76,088	Horses—	
Improved land in farms in 1910.....	13,300	Mature horses	1,150
Improved land in farms in 1900.....	14,144	Yearling colts	117
Woodland in farms.....	31,882	Spring colts	39
Other unimproved land.....	46,128	Total	1,806
Value of All Farm Property.		Value	\$90,724
Total value in 1910.....	\$1,591,469	Mules—	
Total value in 1900.....	1,040,819	Mature mules	142
Per cent increase, 1900-1910.....	52.9	Yearling colts	19
Land in 1910.....	900,855	Spring colts	7
Land in 1900.....	583,450	Total	168
Buildings in 1910.....	274,260	Value	\$9,065
Buildings in 1900.....	171,550		
Implements and machinery in 1910.....	69,119		
Implements and machinery in 1900.....	31,180		

TRINITY COUNTY SUMMARY—Continued.

Domestic Animals on Farms and Ranges—Continued.			Special crops—		
Asses and burros—			Potatoes, acres		143
Number	8		All other vegetables, acres		192
Value	\$670				
Swine—			Orchard fruits—	Number	
Mature hogs	2,594		Apples	bearing trees	4,272
Spring pigs	1,467		Apricots		41
Total	4,051		Cherries		247
Value	\$17,281		Peaches and nectarines		886
			Pears		736
			Prunes and plums		1,063
Sheep—			Total		7,313
Rams, ewes and wethers	2,732				
Spring lambs	1,061		Tropical fruits—	Number	
Total	3,813		Figs	bearing trees	30
Value	\$10,486		Lemons		2
Goats—			Total		22
Number	845		Grapevines—		
Value	\$1,619		Number in bearing		2,842
Total value all domestic animals	\$342,089		Small fruits—		
Poultry and bees—			Strawberries, acres		5
Poultry of all kinds	7,712		Blackberries and dewberries, acres		5
Value	\$4,729		All others, acres		5
Colonies of bees	98		Total		15
Value	\$417				
Principal Crops.					
	Acres	Bushels	Nuts—	Number	
Corn	51	1,833	Almonds	bearing trees	30
Oats	150	2,667	Pecans		1
Wheat	377	5,274	Walnuts		58
Barley	39	1,210	Total		91
Dry edible beans	4	275			
Potatoes	143	20,467			
Hay and forage—	Acres	Tons	Irrigation.		
Timothy alone	266	550	Number of farms irrigated in 1909		201
Timothy and clover mixed	1,549	2,974	Acres irrigated in 1909		6,324
Clover alone	135	251	Acres enterprises were capable of irrigating in 1910		7,127
Alfalfa	1,115	2,632	Acres included in projects		9,513
Other tame and cultivated grasses	33	46	Main ditches, number		308
Wild, salt, or prairie grasses	578	680	Length, miles		228
Grains cut green	1,665	1,765	Laterals, number		41
All other hay and forage	9	21	Length, miles		13
Total	5,350	8,929	Pumped wells, number		1
Poultry products—			Cost of irrigation enterprises up to July 1, 1910		\$173,414
Poultry raised, number	10,800		Average cost per acre irrigation enterprises were capable of irrigating in 1910		\$34.33
Eggs produced, dozens	31,776				
Value poultry and eggs produced	\$15,957		Mineral Production in 1916.		
Honey and wax—			Substance	Amount	Value
Honey produced, pounds	1,005		Gold		\$435,498
Wax produced, pounds	15		Platinum, ounces	113	5,161
Value honey and wax produced	\$207		Silver		7,591
Wool—			Stone, miscellaneous		1,000
Wool, fleeces shorn	2,603		Other minerals*		397,316
Mohair and goat hair, fleeces shorn	44		Total		\$846,561
Value wool and mohair produced	\$1,892		Number of mineral springs		4

*Includes chromite, copper, manganese, mineral water and quicksilver.

TULARE COUNTY.

Date of creation, April 20, 1852.

	1890	1900	1910	1918 (estimated)
Land area, 4,856 square miles.	Population-- 24,574	18,375	35,440	-----
County seat, Visalia (city).	Population-- 2,885	3,085	4,550	6,000
Population per square mile, 7.3.				

	Highest	Lowest	Inches	Inches
Elevation, 334 feet.	1916: Temperature---106	21	Rainfall---12.79	Snow-- T
	1917: Temperature---106	16	Rainfall--- 5.19	Snow-- T

Tulare County is one of the largest counties of the great San Joaquin Valley. The valley sweeps southward 250 miles to where the Tehachapi Mountains intersect with the Sierra and Coast ranges, forming the line between the so-called northern and southern California.

About one-half of the county is mountainous. Its eastern boundary, commencing at the crest of the Sierras, embraces Mount Whitney, whose hoary head reaches an altitude of 14,522 feet and is the highest summit in the United States. Out of these mountains flow many streams that furnish water to irrigate the level and fertile acres.

Wheat and small grains are grown without irrigation. Tulare County was at one time the banner wheat county, some individuals sowing five, ten, and twenty thousand acres, but farming on that scale is rapidly passing away. Still there are many thousand acres sown to wheat annually.

The principal agricultural products of Tulare County are wheat, barley, alfalfa, sugar beets, and Egyptian corn, and beans are now an important crop. The sugar beet factory at Visalia harvested 1,640 acres of beets in 1917, producing 5,275 tons of beets and 1,585,000 pounds of sugar.

Tulare County produces large quantities of peaches and prunes, also pears, apricots, apples, olives, figs, plums, almonds, walnuts, raisins, table and wine grapes, oranges, lemons, and berries of all kinds. The citrus orchards in the districts around Exeter, Porterville, and Lindsay are the largest and most successful in northern California. The price received for navels in 1917 was higher than any previous year. About 2,200,000 boxes of citrus fruits were shipped, but the crop being fifty per cent less than in 1916 the prices for navels was abnormally high, the growers receiving nearly \$1.50 per box more than in the previous season. The planting of citrus fruits in 1917 was very light.

Some of the largest raisin vineyards are to be found in Tulare County. The Muscat, Sultana, and Thompson's Seedless are the principal varieties grown. In the vicinity of Dinuba, Orosi, and Sultana this industry is especially flourishing.

About 50 miles northeast of Visalia lies the Sequoia National Park, a reservation by the government of the largest forest of *Sequoia gigantea* trees in existence. The reservation contains about 250 square miles. There are more than 3,000 sequoias in this forest that measure over 45 feet in circumference and 300 feet in height. The General Sherman in this forest is said to be the largest living tree in the United States. Over 100 feet from its base it is 80 feet in circumference.

NOTE.—In 1899, 96 square miles were transferred to Kings County.

TULARE COUNTY SUMMARY.

(Census 1910.)

Number of Farms Classified by Size.			
Under 3 acres.....	9	Swine—	
3 to 9 acres.....	171	Mature hogs.....	23,942
10 to 19 acres.....	390	Spring pigs.....	14,250
20 to 49 acres.....	1,247	Total.....	38,192
50 to 99 acres.....	647	Value.....	\$301,227
100 to 174 acres.....	597		
175 to 259 acres.....	198	Sheep—	
260 to 499 acres.....	364	Rams, ewes and wethers.....	14,014
500 to 999 acres.....	197	Spring lambs.....	7,170
1,000 acres and over.....	201	Total.....	21,184
Total.....	4,021	Value.....	\$79,930
Total in 1900.....	2,212		
Land and Farm Areas.		Goats—	
Approximate land, acres.....	3,107,840	Number.....	297
Land in farms in 1910.....	1,045,231	Value.....	\$8,632
Land in farms in 1900.....	1,059,727	Total value all domestic animals.....	\$5,950,226
Improved land in farms in 1910.....	507,024		
Improved land in farms in 1900.....	546,289	Poultry and bees—	
Woodland in farms.....	161,300	Poultry of all kinds.....	191,965
Other unimproved land.....	376,847	Value.....	\$102,352
Value of All Farm Property.		Colonies of bees.....	9,568
Total value in 1910.....	\$76,539,642	Value.....	\$30,027
Total value in 1900.....	20,287,811		
Per cent increase, 1900-1910.....	277.3	Principal Crops.	
Land in 1910.....	\$64,455,554		
Land in 1900.....	15,898,000		
Buildings in 1910.....	4,195,452		
Buildings in 1900.....	1,376,960		
Implements and machinery in 1910.....	1,805,419		
Implements and machinery in 1900.....	715,450		
Domestic animals, poultry and bees in 1910.....	6,083,217		
Domestic animals, poultry and bees in 1900.....	2,296,791		
Domestic Animals on Farms and Ranges.			
Cattle*—			
Dairy cows.....	26,765		
Other cows.....	29,478		
Yearling heifers.....	11,911		
Calves.....	16,092		
Yearling steers and bulls.....	8,784		
Other steers and bulls.....	10,429		
Total.....	104,484		
Value.....	\$2,713,596		
Horses*—			
Mature horses.....	18,917		
Yearling colts.....	2,003		
Spring colts.....	1,250		
Total.....	22,200		
Value.....	\$2,334,909		
Mules—			
Mature mules.....	3,149		
Yearling colts.....	288		
Spring colts.....	218		
Total.....	3,655		
Value.....	\$491,410		
Asses and burros—			
Number.....	103		
Value.....	\$20,534		

*Includes animals, age and sex not specified.

TULARE COUNTY SUMMARY—Continued.

Principal Crops—Continued.		Irrigation.	
	Number	Number of farms irrigated in 1909...	8,048
Orchard fruits—	bearing trees	Acres irrigated in 1909.....	265,404
Apples	25,261	Acreage enterprises were capable of	
Apricots	48,834	irrigating in 1910.....	337,938
Cherries	816	Acreage included in projects.....	466,735
Peaches and nectarines.....	714,494	Main ditches, number.....	752
Pears	6,483	Length, miles	1,033
Prunes and plums.....	264,337	Laterals, number	577
Total	1,059,830	Length, miles	629
	Number	Flowing wells, number.....	79
Tropical fruits—	bearing trees	Pumped wells, number.....	794
Figs	15,750	Cost of irrigation enterprises up to	
Lemons	41,069	July 1, 1910.....	\$5,634,379
Oranges	801,151	Average cost per acre irrigation	
Pomeloes	8,114	enterprises were capable of irrigat-	
Olives	5,605	ing in 1910.....	16.67
Total	872,657		
Grapevines—			
Number in bearing.....	7,227,491		
Small fruits—			
Strawberries, acres	19		
Blackberries and dewberries, acres..	70		
All others, acres.....	30		
Total	119		
Nuts—	Number		
Almonds	bearing trees		
Pecans	1,977		
Walnuts	26		
Total	1,942		
	Number		
	bearing trees		
	1,942		
Total	3,945		

Mineral Production in 1916.		
Substance	Amount	Value
Chromite, tons	3,435	\$42,555
Brick, thousands	6,320	48,500
Copper, pounds	1,422	350
Magnesite, tons	87,606	737,130
Stone, miscellaneous		82,255
Other minerals*		86,410
Total		\$947,200
Number of mineral springs.....		18

*Includes feldspar, granite, limestone, marble and silica.

NOTE.—Tulare County leads the state in the output of magnesite, and to this is due the increase of value in minerals from \$184,599 in 1915.

TUOLUMNE COUNTY.

Date of creation, February 18, 1850.

	1890	1900	1910	1915 (estimated)
Land area, 2,190 square miles.	Population.. 6,062	11,166	9,979	-----
County seat, Sonora (city).	Population.. 1,441	1,922	2,029	2,029
Population per square mile, 4.6.				

	Highest	Lowest	Inches	Inches
Elevation, 1,825 feet.	1916: Temperature. 98	17	Rainfall...44.09	Snow. 4.5
Lake Eleanor, 4,700 feet.	1917: Temperature. 96	—4	Rainfall...27.43	Snow.124.6

Tuolumne County is in central California. The eastern portion extends into the western slope of the Sierra Nevada range. The entire surface is of a rugged character, with many small and fertile valleys and meadows, and sloping hills heavily covered with timber.

The main rivers are the Stanislaus and Tuolumne, tributaries of the San Joaquin. The Tuolumne has its source entirely within the limits of the county, and may be termed the river of a thousand lakelets, although a number of these strictly come under the head of lakes. The main or principal branch of the river flows through the Hetch Hetchy Valley. The Stanislaus River, to the north, with one of its branches, forms the boundary line of this county and Calaveras.

In many places the soil is well adapted to fruit growing.

Stock raising is controlled mostly by feed—by those who have ranges in the mountains for summer and pasturage in the foothills for winter. In the mountains in certain sections there are meadows upon which grows the finest kind of bunch grass, while upon the hillsides wild oats and timothy afford a splendid feed.

(Information supplied by the County Surveyor.)

Tuolumne County is located near the center of the state, due east from San Francisco, a distance of 90 miles in an air line, at an altitude, above sea level, ranging from 500 feet in the west to 12,000 feet in the east, the average altitude in the populated portion of the county being about 2,000 feet.

The famous "Mother Lode" series of gold-bearing veins traverses the western portion of the county for a distance of 23 miles, giving employment to hundreds of men who wrest from its depth more than \$1,000,000 annually.

The county is also traversed by a system of ancient river channels, containing gold-bearing gravels, which have been covered and filled up with a deposit of volcanic origin. Notably among these is the Table Mountain Channel, which is, at present, being mined at many different points.

West of the Mother Lode there is quite a copper deposit, which awaits development to demonstrate its commercial value and possibilities.

Three miles northwest of Columbia is an immense deposit of marble, which is being extensively quarried by the Columbia Marble Company. It is one of the largest marble quarries in California, and many of the notable buildings in San Francisco and throughout the state furnish proof of its quality and beauty. The annual output of marble from this quarry is valued at \$50,000.

Limestone is also being quarried at Shaws Flat, Browns Flat, and at a point one mile south of Sonora. South of Sonora the limestone is calcined in kilns, and a superior quality of lime is produced. The supply of limestone is practically inexhaustible.

Tuolumne County has also an extensive lumber industry. One company holds 60,000 acres of white pine, sugar pine, fir and cedar, and another holds 42,000 acres of white pine, sugar pine, fir and cedar. Together they cut annually about 75 million feet. This industry gives employment to about 2,000 men and is one of the principal sources of revenue to the county.

Although the fruit industry is young, its commercial possibilities have been established.

Besides apples other fruits are grown equally as successfully, among them being pears, peaches, grapes, plums, etc.

Vegetable gardens, with almost every known vegetable, are in evidence in every community and commercially have proven a great success.

In Tuolumne County another important industry is that of stock or cattle raising, the cattlemen being among the wealthiest citizens. Here every opportunity and advantage presents itself, there being abundance of range, feed and water. During the winter months the cattle graze in the foothill ranges and in the summer they are driven to the mountains, where they pasture and grow fat in the rich meadows and hillsides of the mountains within the forest reservation. They are shipped direct, by rail, from Sonora to market in carloads.

For irrigation and development of power there is an abundant supply of water, for Tuolumne County embraces the larger portions of the watersheds of the Stanislaus and Tuolumne rivers—the principal tributaries of the San Joaquin River. In fact, it is from this county that the city of San Francisco expects, in the future, to obtain its water supply, and active operations have already begun for that purpose.

The hydroelectric plant of the Sierra and San Francisco Power Company, located here, supplies the electric power for the street car system in San Francisco and many of the mines in this county.

The splendid system of state highways is being extended into this county, the construction work being already completed as far as Sonora, the county seat.

The county has also acquired and turned over to the state the Big Oak Flat scenic route to the Yosemite Valley, and a more interesting trip than one by this route to the Yosemite, can not be had.

TUOLUMNE COUNTY SUMMARY.

(Census 1910.)

Number of Farms Classified by Size.			
Under 3 acres.....	1	Improved land in farms in 1910.....	36,407
3 to 9 acres.....	4	Improved land in farms in 1900.....	36,461
10 to 19 acres.....	15	Woodland in farms.....	62,215
20 to 49 acres.....	28	Other unimproved land.....	94,450
50 to 99 acres.....	27		
100 to 174 acres.....	106	Value of All Farm Property.	
175 to 259 acres.....	85	Total value in 1910.....	\$2,942,322
260 to 499 acres.....	88	Total value in 1900.....	2,181,145
500 to 999 acres.....	48	Per cent increase, 1900-1910.....	33.1
1,000 acres and over.....	40	Land in 1910.....	1,779,470
		Land in 1900.....	1,284,260
Total.....	386	Buildings in 1910.....	451,955
Total in 1900.....	457	Buildings in 1900.....	397,850
Land and Farm Areas.		Implements and machinery in 1910.....	114,530
Approximate land, acres.....	1,401,600	Implements and machinery in 1900.....	102,070
Land in farms in 1910.....	183,072	Domestic animals, poultry and bees	
Land in farms in 1900.....	204,758	In 1910.....	596,067
		Domestic animals, poultry and bees	
		in 1900.....	346,965

TUOLUMNE COUNTY SUMMARY—Continued.

Domestic Animals on Farms and Ranges.

Cattle*—		
Dairy cows	1,773	
Other cows	8,415	
Yearling heifers	2,040	
Calves	2,977	
Yearling steers and bulls	1,531	
Other steers and bulls	1,223	
Total	18,659	
Value	\$377,806	

Horses—		
Mature horses	2,053	
Yearling colts	242	
Spring colts	196	
Total	2,491	
Value	\$165,930	

Mules—		
Mature mules	76	
Yearling colts	7	
Spring colts	8	
Total	91	
Value	\$7,055	

Asses and burros—		
Number	26	
Value	\$1,155	

Swine—		
Mature hogs	2,590	
Spring pigs	1,303	
Total	3,893	
Value	\$21,620	

Sheep—		
Rams, ewes and wethers	1,795	
Spring lambs	671	
Total	2,466	
Value	\$8,658	

Goats—		
Number	1,609	
Value	\$3,808	

Total value all domestic animals \$585,892

Poultry and bees—		
Poultry of all kinds	15,989	
Value	\$9,114	
Colonies of bees	363	
Value	\$1,061	

Principal Crops.

	Acres	Bushels
Corn	7	156
Oats	425	7,447
Wheat	277	5,373
Barley	579	5,055
Dry edible beans	3	61
Potatoes	114	18,808

Hay and forage—		Acres	Tons
Timothy alone	12	18	
Timothy and clover mixed	128	152	
Clover alone	110	218	
Alfalfa	145	475	
Other tame and cultivated			
grasses	254	264	
Wild, salt, or prairie grasses	1,740	1,636	
Grains cut green	6,224	6,700	
All other hay and forage	11	22	
Totals	8,624	9,584	

Poultry products—			
Poultry raised, number		22,710	
Eggs produced, dozen		94,507	
Value poultry and eggs produced		\$36,457	

Honey and wax—			
Honey produced, pounds		12,310	
Wax produced, pounds		65	
Value of honey and wax produced		\$879	

Wool—			
Wool, fleeces shorn		1,408	
Mohair and goat hair, fleeces shorn		177	
Value wool and mohair produced		\$906	

Special crops—			
Potatoes, acres		114	
Sweet potatoes, acres		2	
All other vegetables, acres		232	

Orchard fruits—		Number	
		bearing trees	
Apples		13,544	
Apricots		162	
Cherries		144	
Peaches and nectarines		3,065	
Pears		1,056	
Prunes and plums		1,404	
Total		19,554	

Tropical fruits—		Number	
		bearing trees	
Figs		237	
Lemons		6	
Oranges		114	
Olives		10	
Total		367	

Grapevines—			
Number in bearing		95,811	

Small fruits—			
Strawberries, acres		5	
Blackberries and dewberries, acres		8	
All others, acres		6	
Total		19	

Nuts—		Number	
		bearing trees	
Almonds		54	
Pecans		1	
Walnuts		175	
Total		230	

*Includes animals, age and sex not specified.

TUOLUMNE COUNTY SUMMARY—Continued.

Irrigation.		Mineral Production in 1916.		
		Substance	Amount	Value
Number of farms irrigated in 1909...	157	Chromite, tons	285	\$4,556
Acres irrigated in 1909.....	2,035	Copper, pounds	1,797	442
Acres enterprises were capable of irrigating in 1910.....	2,083	Gold		868,237
Acres included in projects.....	5,958	Lead, pounds	873	60
Main ditches, number.....	62	Limestone, tons	3,137	5,132
Length, miles	153	Silver		17,039
Laterals, number	11	Stone, miscellaneous		1,500
Length, miles	24	Other minerals*		107,296
Flowing wells, number	2			
Pumped wells, number.....	4	Total		\$1,004,262
Cost of irrigation enterprises up to July 1, 1910.....	\$180,474	Number of mineral springs.....		1
Average cost per acre irrigation enterprises were capable of irrigat- ing in 1910.....	\$86.64			

*Includes dolomite, lime, magnesite and marble.

VENTURA COUNTY.

Date of creation, March 22, 1872.

	1890	1900	1910	1915 (estimated)
Land area, 1,878 square miles.	Population-- 10,071	14,867	18,347	-----
County seat, Ventura (city).	Population-- 2,320	2,470	2,945	3,500
Population per square mile, 9.8.				

Ojai Valley (Station):	Highest	Lowest	Inches	Inches
Elevation, 900 feet.	1916: Temperature...105	25	Rainfall...36.25	Snow... 0
	1917: Temperature...119	23	Rainfall...11.04	Snow... 0

Of Ventura County's 1,878 square miles, less than one-fourth is under cultivation. Back from the coast in all directions rise rugged mountain ranges, whose hearts are pierced in every direction with canyons and valleys of varying lengths. The entire northern section of the county is mountainous, but between the ranges here and there are to be found little valleys, whose soil is most productive. These two rivers, the Santa Clara and the San Buenaventura, rise in these northern mountains, their sources being separated but a few miles. The Piru River, the Sespe, and the Santa Paula River, each of considerable length from its winding through the mountain gorges and canyons, flow into and form the Santa Clara River, which enters the county on the south-eastern border, and flows in a generally western direction straight across to the sea.

(Information supplied by the Ventura Chamber of Commerce.)

Ventura County, one of the group of eight of the southernmost counties of the state, lies between Santa Barbara County on the west and Los Angeles County on the east and extends from a 50-mile front on the shores of the Pacific Ocean (Santa Barbara Channel), north to the summit of the Coast Range mountains (Kern County line).

Its southern half is mainly under cultivation. In its northern portion, situated in the foothills of the Coast Range, are many valleys occupied and organized into (four) school districts.

Its principal streams are the Santa Clara River, having its source in the Coast Range and flowing across the county in a western direction and entering the sea about five miles south of the county seat; this is fed by large lateral streams of considerable length, known as the San Francisquito, Casitas, Piru, Sespe and the Santa Paula rivers. The San Buenaventura River, flowing southerly from the foothills, with San Antonio Creek of the Ojai Valley as a feeder, enters the sea at Ventura; also the Cuyama River, with its source and many lateral streams, situated in the northwest quarter of the county, flowing westerly.

Every variety of plant life does well in this county. It produces more lima beans than any other county in the state. There is a large acreage in sugar beets, which supplies the Oxnard sugar factory. Apricots, walnuts, lemons and oranges are some of the principal products of the county.

In minerals the principal production is petroleum, the output in 1916 amounting to 943,499 barrels, valued at \$985,956, and natural gas of the value of \$133,867.

Leading Crops in Ventura County in 1917.
(Report of the County Horticultural Commissioner.)

Crop	Bearing acres	Nonbearing acres	Number of tons
Alfalfa	2,000		10,000
Almonds	143	85	50
Apricots, dried	8,055	3,813	2,700
Green			1,074
Beans	90,000		71,000
Beets	15,461		111,465
Hay and grain	60,000		55,000
Lemons	2,827	3,980	16,850
Olives	450	75	900
Oranges	2,040	1,602	8,275
Walnuts	9,000	2,556	4,500
Wheat	1,000		500
Corn, sorghums, potatoes, tomatoes, peas, and other truck crops	3,000		

*10,000 acres intercalary.

VENTURA COUNTY SUMMARY.

(Census 1910.)

Number of Farms Classified by Size.		Horses*—	
Under 3 acres	13	Mature horses	9,955
3 to 9 acres	87	Yearling colts	906
10 to 19 acres	120	Spring colts	589
20 to 49 acres	199	Total	11,480
50 to 99 acres	214	Value	\$1,497,792
100 to 174 acres	207		
175 to 259 acres	142		
260 to 499 acres	155		
500 to 999 acres	90		
1,000 acres and over	66		
Total	1,293		
Total in 1900	1,269		
Land and Farm Areas.		Mules—	
Approximate land, acres	1,201,920	Mature mules	2,250
Land in farms in 1910	550,199	Yearling colts	66
Land in farms in 1900	552,359	Spring colts	46
Improved land in farms in 1910	213,968	Total	2,362
Improved land in farms in 1900	174,419	Value	\$407,950
Woodland in farms	56,061		
Other unimproved land	280,270		
Value of All Farm Property.		Asses and burros—	
Total value in 1910	\$48,262,645	Number	60
Total value in 1900	21,433,487	Value	\$10,310
Per cent increase, 1900-1910	125.2		
Land in 1910	\$41,826,120		
Land in 1900	18,549,290		
Buildings in 1910	2,365,140		
Buildings in 1900	1,491,250		
Implements and machinery in 1910	1,112,512		
Implements and machinery in 1900	482,270		
Domestic animals, poultry and bees			
in 1910	2,958,573		
Domestic animals, poultry and bees			
in 1900	910,677		
Domestic Animals on Farms and Ranges.		Swine—	
Cattle*—		Mature hogs	6,984
Dairy cows	2,666	Spring pigs	8,514
Other cows	5,887	Total	10,498
Yearling heifers	2,130	Value	\$87,633
Calves	2,442		
Yearling steers and bulls	2,095		
Other steers and bulls	10,850		
Total	29,929		
Value	\$704,498		
		Sheep—	
		Rams, ewes and wethers	16,113
		Spring lambs	15,658
		Total	31,771
		Value	\$119,783
		Goats—	
		Number	621
		Value	\$1,273
		Total value all domestic animals	\$2,326,239
		Poultry and bees—	
		Poultry of all kinds	60,921
		Value	\$34,216
		Colonies of bees	23,714
		Value	\$98,118

*Includes animals, age and sex not specified.

35—37910

YOLO COUNTY.

Date of creation, February 18, 1850.

	1890	1900	1910	1915 (estimated)
Land area, 1,014 square miles.	Population.. 12,684	13,618	13,926	-----
County seat, Woodland (city).	Population.. 3,069	2,886	3,187	5,000
Population per square mile, 13.7.				

Davis (Station):	Highest	Lowest	Inches	Inches
Elevation, 51 feet.	1916: Temperature...110	20	Rainfall...20.16	Snow... 7.0
	1917: Temperature...111	25	Rainfall... 9.50	Snow... 0

Yolo County is situated in a delta of the Sacramento River, where it changes from a southerly to a westerly course on its way to the Pacific. About 75 per cent of the county consists of level land, the balance being rolling hills and mountains. The principal industries are farming, stock raising and fruit growing.

Hops are produced along the river bottoms. There is considerable acreage in barley and wheat, and in fruits, apricots, peaches, and prunes are the leading crops.

In 1916 the county packed 800 tons of Sultanas, 200 tons of Thompson's Seedless, and 200 tons of Muscat raisins.

Eucalyptus trees have been planted upon 1,790 acres. These trees, of which 320 acres are only a few years old, show a marvelous growth and bid fair to add great value to our forest products. The former value of land where these trees are now planted has increased fivefold. This industry is in its infancy, but is receiving much attention, as an increased acreage will be planted.

The county has a navigable river front of 90 miles along the Sacramento River, which affords at all seasons a cheap and ready means of transportation for the numerous products grown along its banks.

The reclamation of overflowed lands, which are very fertile, grows apace with other developments. Many large tracts have either been reclaimed, or are in course of reclamation.

At Davis, upon 685 acres of very fertile land, is located the State Agricultural Farm, which is affiliated with the State University, and which is presided over by competent professors, who instruct in various branches of agriculture, dairying, etc. This college is very popular, and its courses are being taken advantage of by a large number of students.

Yolo is one of the two counties in California that produces no minerals in commercial quantities, the other being Sutter County.

NOTE.—For details regarding the acreage and production of rice, see Part V, and for raisins, Part VII.

YOLO COUNTY SUMMARY.

(Census 1910.)

Number of Farms Classified by Size.			
Under 3 acres.....	4	Swine—	
3 to 9 acres.....	58	Mature hogs.....	15,483
10 to 19 acres.....	115	Spring pigs.....	8,714
20 to 49 acres.....	288	Total.....	24,197
50 to 99 acres.....	106	Value.....	\$152,155
100 to 174 acres.....	110	Sheep—	
175 to 259 acres.....	63	Rams, ewes and wethers.....	49,807
260 to 499 acres.....	189	Spring lambs.....	29,689
500 to 999 acres.....	107	Total.....	79,446
1,000 acres and over.....	85	Value.....	\$284,627
Total.....	1,255	Goats—	
Total in 1900.....	1,214	Number.....	716
		Value.....	\$1,552
Land and Farm Areas.		Total value all domestic animals	
Approximate land, acres.....	648,980		\$2,465,128
Land in farms in 1910.....	463,383	Poultry and bees—	
Land in farms in 1900.....	552,065	Poultry of all kinds.....	76,972
Improved land in farms in 1910.....	317,268	Value.....	\$43,826
Improved land in farms in 1900.....	351,213	Colonies of bees.....	2,442
Woodland in farms.....	77,576	Value.....	\$10,472
Other unimproved land.....	68,539		
Value of All Farm Property.		Principal Crops.	
Total value in 1910.....	\$31,798,096	Corn.....	Acres Bushels
Total value in 1900.....	19,989,751	Oats.....	201 5,123
Per cent increase, 1900-1910.....	59.1	Wheat.....	515 12,305
Land in 1910.....	25,084,710	Barley.....	13,452 237,593
Land in 1900.....	15,906,280	Kafir corn and milo maize.....	49,530 1,236,384
Buildings in 1910.....	2,799,277	Dry edible beans.....	21 710
Buildings in 1900.....	1,985,590	Potatoes.....	1,830 50,974
Implements and machinery in 1910.....	786,102	Hay and forage.....	402 45,498
Implements and machinery in 1900.....	510,430	Clover alone.....	Acres Tons
Domestic animals, poultry and bees		Alfalfa.....	326 1,030
in 1910.....	2,518,947	Other tame and cultivated	16,498 66,110
Domestic animals, poultry and bees		grasses.....	3,927 5,323
in 1900.....	1,687,451	Wild, salt, or prairie grasses.....	534 740
		Grains cut green.....	24,479 31,106
		All other hay and forage.....	97 424
Domestic Animals on Farms and Ranges.		Totals.....	45,850 104,733
Cattle—		Poultry products—	
Dairy cows.....	7,197	Poultry raised, number.....	84,010
Other cows.....	3,761	Eggs produced, dozen.....	347,309
Yearling heifers.....	2,654	Value poultry and eggs produced..	\$131,892
Calves.....	2,649	Honey and wax—	
Yearling steers and bulls.....	1,194	Honey produced, pounds.....	106,982
Other steers and bulls.....	1,522	Wax produced, pounds.....	1,125
Total.....	18,977	Value of honey and wax produced..	\$8,312
Value.....	\$553,417	Wool—	
Horses—		Wool, fleeces shorn.....	82,602
Mature horses.....	7,127	Mohair and goat hair, fleeces shorn	316
Yearling colts.....	814	Value wool and mohair produced..	\$78,497
Spring colts.....	374	Special crops—	
Total.....	8,315	Potatoes, acres.....	402
Value.....	\$907,487	Sweet potatoes, acres.....	31
Mules—		All other vegetables, acres.....	1,096
Mature mules.....	3,501	Sugar beets, acres.....	5,714
Yearling colts.....	265		
Spring colts.....	180	Orchard fruits—	Number
Total.....	3,955	Apples.....	bearing trees
Value.....	\$555,410	Apricots.....	2,512
Asses and burros—		Cherries.....	117,228
Number.....	46	Peaches and nectarines.....	4,534
Value.....	\$10,480	Pears.....	116,003
		Prunes and plums.....	28,115
		Total.....	119,193
		Total.....	397,748

YOLO COUNTY SUMMARY—Continued.

Principal Crops—Continued.		Irrigation.	
	Number bearing trees	Number of farms irrigated in 1909....	338
Tropical fruits—		Acres irrigated in 1909.....	11,754
Figs	10,476	Acres enterprises were capable of irrigating in 1910.....	14,667
Lemons	183	Acres included in projects.....	55,967
Oranges	2,371	Main ditches, number.....	8
Pomeelos	1,325	Length, miles	87
Olives	4,482	Laterals, number	8
Total	18,858	Length, miles	83
Grapevines—		Pumped wells, number	58
Number in bearing.....	2,568,019	Cost of irrigation enterprises up to July 1, 1910.....	\$311,660
Small fruits—		Average cost per acre irrigation enterprises were capable of irrigat- ing in 1910.....	\$21.21
Strawberries, acres	1		
Blackberries and dewberries, acres.....	6		
All others, acres.....	3		
Total	10		
	Number bearing trees		
Nuts—			
Almonds	149,019		
Pecans	9		
Walnuts	1,270		
Total	150,822		
		Mineral Production.*	
		Substance	Value
		Stone, miscellaneous	\$300

*The mineral production from Yolo County during the year 1916 consisted only of miscellaneous stone valued at \$300, ranking it in fifty-seventh place. Deposits of undetermined value of iron and sandstone have been discovered within the confines of this county. Some quicksilver output has been made in the past, and may resume.

YUBA COUNTY.

Date of creation, February 18, 1850.

	1890	1900	1910	1915 (estimated)
Land area, 639 square miles.	Population... 9,636	8,620	10,042	-----
County seat, Marysville (city).	Population... 3,991	3,497	5,430	6,000
Population per square mile, 15.7.				

	Highest	Lowest	Inches	Inches
Elevation, 67 feet.	1916: Temperature...108	24	Rainfall...21.99	Snow... 4.0
	1917: Temperature...108	24	Rainfall...10.89	Snow... 0

Yuba County is about half valley and half mountains. In the mountainous portion the industries are mining, lumbering, and stock raising. Deciduous fruits of all kinds are also raised with success, olives in the foothills especially.

At Hammonton and Marigold, on the Yuba River, dredge mining is carried on extensively. The machines are in operation day and night. Many important quartz mines are operated. The Feather River forms most of the western boundary. This stream is the second largest watercourse in the Sacramento Valley, and is navigable as far up as Marysville. Bear River is the southern boundary of the county. The Yuba River passes through the county about midway. These rivers are never failing in water supply. Subterranean water is available in most parts of the county. There are several irrigation districts that take water from the Yuba River.

In the production of gold the county ranks third among the counties of the state. Farm crops are large, barley having the largest acreage, and in fruits, pears and peaches take the lead. Within the last few years rice has been grown successfully, the area in 1917 amounting to 4,700 acres.

Much of the desirable area of the county is practically undeveloped.

YUBA COUNTY SUMMARY.

(Census 1910.)

Number of Farms Classified by Size.			
3 to 9 acres.....	13	Buildings in 1910.....	688,505
10 to 19 acres.....	20	Buildings in 1900.....	637,130
20 to 49 acres.....	83	Implements and machinery in 1910....	171,736
50 to 99 acres.....	84	Implements and machinery in 1900....	151,650
100 to 174 acres.....	82	Domestic animals, poultry and bees	
175 to 259 acres.....	30	in 1910.....	894,300
260 to 499 acres.....	93	Domestic animals, poultry and bees	
500 to 999 acres.....	64	in 1900.....	539,683
1,000 acres and over.....	67	Domestic Animals on Farms and Ranges.	
Total.....	436	Cattle—	
Total in 1900.....	483	Dairy cows.....	2,255
Land and Farm Areas.		Other cows.....	4,773
Approximate land, acres.....	408,900	Yearling heifers.....	1,628
Land in farms in 1910.....	349,108	Calves.....	1,827
Land in farms in 1900.....	312,321	Yearling steers and bulls.....	1,152
Improved land in farms in 1910.....	94,250	Other steers and bulls.....	1,959
Improved land in farms in 1900.....	154,013	Total.....	13,594
Woodland in farms.....	70,175	Value.....	\$276,046
Other unimproved land.....	84,683	Horses—	
Value of All Farm Property.		Mature horses.....	2,803
Total value in 1910.....	\$6,666,211	Yearling colts.....	298
Total value in 1900.....	4,703,613	Spring colts.....	153
Per cent increase, 1900-1910.....	41.7	Total.....	3,244
Land in 1910.....	4,911,611	Value.....	\$278,764
in 1900.....	3,375,150		

INDEX.

	PAGE.
A	
Abalones	311, 314, 316
Agricultural Associations	370-372
Agriculture, boards of	367, 368
Almeria grapes	130
Almonds	163, 170, 191, 198
Angora goats	40
Animals, purebred	41, 42
Apples	134, 163, 183, 193
Apricots	145, 163, 184, 193
Area in land and water	2
Area of counties, and county seats, assessed acreage	Facing page 1
Asses and burros	39, 58
Assessed property, total value	329
Automobiles—See Motor Vehicles.	
Avocados	134

B	
Banks, Clearings	332, 333
Barley	79, 81, 106, 112, 116
Beans, dried	85, 91
Beer	212
Bees	73-75
Beeswax	73-75
Beet sugar	85, 94, 97, 118
Births, marriages and deaths	25
Bituminous rock	299
Blackberries and dewberries	133, 159
Borax	298
Brandy	209-211
Broom corn	80, 90
Buckwheat	79, 81, 106
Butter and cheese	68, 69

C	
California crops and other states	177
California fruits	130
California State Board of Agriculture	365
California ports and foreign trade	323-328
Canned fruit	166, 167, 190, 267
Canned vegetables	123, 267
Canned salmon, Sacramento River	310
Cantaloupes	121, 161
Cats, purebred	42
Cattle	42, 49, 54, 58, 370
Celery	119, 121
Cereals	82
Champagne	206
Cheese	68
Cherries	145, 163, 193
Chestnuts	172
Chickens	61, 64, 65
Cider	133
Cities and towns (incorporated), population in 1915	27, 28

	PAGE
Citron	151
Citrus fruits	147-151, 164, 186
Climate	392
Coal	300
Codfish	310
Copper	300
Cork	128
Corn	79, 81, 107, 112
Cotton	101-103
Counties, areas and county seats	facing 1
County indebtedness and taxation	330
Cows	49
Cranberries	133, 177
Crops by states	85-91
Currants—See Greek currants.	

D

Dairy products	61, 67
Dates	132, 135
Deciduous fruits	145
Deer, number killed	320
Dogs, purebred	42
Domestic animals	38, 40, 58
Dried fruits	167, 168, 268
Dry farming	8
Ducks	62

E

Eggs	63, 66
Exports of domestic fruit and nuts	179-192
Exports and imports at California ports	323-328
Experiment stations	368

F

Farm Advisers	369
Farmers, color and nativity	36
Farms, size of	13, 14, 16
Farm animals	38-59
Farm crops	77, 81, 106
Farm crops, 1892-1917	106-109
Farm crops by counties	110-118
Farms	11-18
Farms, mortgages on	14
Farms, by counties	18
Fertilizers	17
Figs	137, 163, 184, 196
Finance and taxation	323
Fisheries	305
Florida citrus fruits	151, 152
Flowers and plants	127
Forests, national	247
Forest fires	253-254
Fresh deciduous fruit, 1903-1917	145
Fruit Associations	371
Fruit crop, dried	183
Fruit varieties, by counties	173-175
Fruits and nut crops	183-191

	G	PAGE
Game		318
Garlic		120
Gas, natural		292
Gasoline		292
Geese		61, 64
Ginseng		125
Goats		40, 57
Gold		296, 326
Gooseberries		133
Grapes	132, 137, 141, 145,	198
Grapefruit		151
Grape juice		206
Greek currants	158, 159,	189
Guavas		132, 141
Guinea fowls		61, 64
	H	
Hay		81, 109, 114
Highway, State		241
Hogs—See Swine.		
Homestead entries		3, 6-8
Honey and wax		73-75
Hops		99
Horses		41, 46, 53, 58
Horticultural Commissioners		369
	I	
Imports and exports of farm products, 1914-1916		86-90
Imports and exports, miscellaneous fruits and nuts		180-192
Improved and unimproved acreage by counties		18
Indian reservations		2
Indian population		3, 30-31
Insurance, life, fire, marine, casualty		360-362
Iron		300
Irrigation	15, 214,	221
Irrigation ditches and wells		233
Irrigation districts and projects		220-226
Irrigation in 1900-1910		219
Irrigated farms, acreage, cost	15,	232
Irrigation in Northern, Central and Southern California		228
	J	
Jujube		141
	K	
Kaffir corn		84, 113
Kelp		311
	L	
Lakes		227
Land, public and vacant	3-10,	248
Lemons	147-151, 164, 187,	196
Lead		299
Loquat		132, 141
Licorice		124
Lima beans		91
Lions, mountain		322
Lumber industry	255,	261
Lumber production, 1905-1917	256-257	
Lumber, lath and shingles		256
Lumber, ownership of forests		259

	M	PAGE
Magnesite		298
Manufactures		260-285
Marriages, births and deaths		25
Merchandise, imports and exports, 1890-1917		327, 328
Metals		302
Milo maize		113
Minerals		294
Minerals by counties		303
Mineral springs		304
Mohair		57
Mortality statistics		24
Mortgage debt on farms		19
Motor vehicles		243-246
Mules		48, 53, 58
Mustard seed		124
	N	
National forests		247
National parks and monuments		4
Natural gas		291
Neat cattle		38
Nectarines		187, 194
Newspapers, agricultural		372
Nuts		132, 170, 175, 192, 371
Nursery products		126, 127
	O	
Oak trees		128
Oats		80, 81, 107, 112
Oil—See Petroleum.		
Olives, pickled, and olive oil		145, 164, 185, 196
Onions		119, 121
Oranges		147-151, 164, 186, 197
Orchard fruits		130, 173
Ostriches		62-63
Oxen, working		39
Oysters, California		311, 314-316
	P	
Peaches		143, 145, 164, 187, 194
Peanuts		170
Pecans		199
Pears		145, 165, 188, 194
Peas		85, 93, 116
Persimmons		132, 141
Petroleum		286
Petroleum by fields and counties		288, 289
Petroleum in California, 1900-1917		291
Pigeons		64
Pistachio nuts		172
Platinum		299
Plums		145, 165, 188, 195
Pomegranates		132, 143
Pomeloos		151, 197
Population, 1850-1915		20
Population by counties, 1850-1910		29
Population, foreign		32, 33
Population, white and colored		30, 31

	PAGE.
Population of towns.....	21, 22, 27, 28
Population, blind	23
Population, Japanese	30, 31, 33-35
Population of cities and towns, 1915.....	27, 28
Ports in California.....	323-328
Potash—See Kelp.	
Potatoes	80, 109, 115, 121
Poultry	61, 64, 371
Prunes	165, 188, 195
Public and Indian lands.....	3

Q

Quicksilver	297
Quinces	132, 170

R

Rainfall	392
Railroad selection (acres).....	4, 6
Railroads in California, steam and electric.....	363, 364
Raisins	153, 189
Raisins, California crop	154-156
Raisins, crop of the world.....	157
Raisins, seeded	158
Rice	88, 97-99
Reclamation service	221-223
Rivers	230, 231, 235-240
River traffic	236-239
Roads, public	241
Roads, mileage by counties.....	242
Rye	80, 81, 108, 113

S

Sacramento River traffic.....	236-238
Salmon catch by counties and value.....	309
Salmon fisheries	307-310, 317
Salmon rivers	309, 310
Salt	299
Salton Sea	226
San Joaquin River traffic.....	237
Sardines, Monterey	310
Schools, teachers and pupils.....	37
School lands	5
Seeded raisins	158
Seeds, flower and vegetable.....	126, 127
Sheep and lambs.....	39, 42, 50, 51, 55, 58, 371
Silk	103
Silver	297, 326
Size of farms.....	13, 14, 16
Small fruits	133, 159, 163, 176, 200
Snowfall	392
State boards of agriculture and experiment stations.....	365-368
State fairs	366
Strawberries	122, 160
Sorghum syrup	97
Stallion registration boards.....	370
Subtropical fruits by counties.....	174, 196, 197
Sugar beets	85, 94-97, 118
Sweet potatoes	81, 85, 115
Swine	41, 42, 51, 59, 371

	PAGE
Tanbark and tanning.....	129
Tariff acts, 1789-1913.....	323
Taxation, state and county.....	330
Temperature	392
Timber, sold and cut.....	250, 251
Tobacco	89, 104
Tomatoes	119, 122
Transportation by water	234
Tropical fruits	174, 196, 197
Tulare Lake	227
Tuna fish	311
Turkeys	62, 64

V

Vacant public lands.....	3, 5-10
Value of all assessed property in California.....	329
Value of fruits and nuts.....	110, 111
Value of farm crops.....	110, 111
Value of crops by counties.....	134
Value of farm lands.....	11-13
Value of land, machinery and live stock, 1850-1910.....	12
Vegetables	120-122, 126
Vineyards	202
Vinegar	133

W

Walnuts	165, 171, 191, 199
Watermelons	121, 161
Wheat and flour.....	80, 81, 108, 113
Wine and brandy	201
Wine grapes, varieties.....	203
Wines, sparkling	206
Wine, imports and exports.....	211-212
Wine production in other states.....	201-202
Wine produced, 1895-1917.....	207, 208
Wool	43, 45, 56

O

Ts
Ts
Ts
Te
Ti
Tc
Tc
Ti
Ti
Ti
Ti
Ti

V
V
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